

# **PART 70 SIGNIFICANT SOURCE MODIFICATION OFFICE OF AIR QUALITY**

**Alcoa, Inc. - Warrick Operations  
Jct. IN Hwys. 66 & 61  
Newburgh, Indiana 47639**

(herein known as the Permittee) is hereby authorized to construct and operate subject to the conditions contained herein, the emission units described in Section A (Source Summary) of this approval.

This approval is issued in accordance with 326 IAC 2 and 40 CFR Part 70 Appendix A and contains the conditions and provisions specified in 326 IAC 2-7 as required by 42 U.S.C. 7401, et. seq. (Clean Air Act as amended by the 1990 Clean Air Act Amendments), 40 CFR Part 70.6, IC 13-15 and IC 13-17.

Source Modification No.: 173-15661-00007	
Issued by: Original Signed by Paul Dubenetzky Paul Dubenetzky, Branch Chief Office of Air Quality	Issuance Date: August 23, 2002

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## SECTION A

## SOURCE SUMMARY

This approval is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ). The information describing the emission units contained in Conditions A.1 through A.3 is descriptive information and does not constitute enforceable conditions. However, the Permittee should be aware that a physical change or a change in the method of operation that may render this descriptive information obsolete or inaccurate may trigger requirements for the Permittee to obtain additional permits or seek modification of this approval pursuant to 326 IAC 2, or change other applicable requirements presented in the permit application.

### A.1 General Information [326 IAC 2-7-4(c)] [326 IAC 2-7-5(15)]

The Permittee owns and operates a stationary primary aluminum reduction source.

Responsible Official:	Melvin W. Lager, Jr.
Source Address:	Jct. IN Hwys. 66 & 61, Newburgh, Indiana 47629
Mailing Address:	Bldg. 860E, P.O. Box 10, Newburgh, Indiana 47629-0010
General Source Phone Number:	812 - 853 - 6111
SIC Code:	3334
County Location:	Warrick County
Source Location Status:	Attainment for all criteria pollutants
Source Status:	Part 70 Permit Program Major Source, under PSD Rules; Major Source, Section 112 of the Clean Air Act 1 of 28 Source Categories

### A.2 Emission Units and Pollution Control Equipment Summary [326 IAC 2-7-4(c)(3)] [326 IAC 2-7-5(15)]

This stationary source is approved to rebuild and operate the following emission unit and pollution control devices:

- (a) One (1) above-ground, natural gas-fired, green anode baking ring furnace, known as Bldg. 295 Anode Baking Ring Furnace, equipped with a baghouse for particulate matter control and a dry alumina scrubber for TF and SO<sub>2</sub> control, exhausting through Stacks 265D.1, 265D.2, 265D.3, 265D.4, 265D.5, 265D.6, 265D.8, and 265J.1, capacity: 23.15 tons of green anodes per hour.

This stationary source is also approved to limit the operation of the following emission unit and pollution control devices:

- (b) One (1) dross cooling operation, equipped with four (4) baghouses for PM<sub>10</sub> control, capacity: 28.2 tons per hour.

### A.3 Specifically Regulated Insignificant Activities [326 IAC 2-7-1(21)] [326 IAC 2-7-4(c)] [326 IAC 2-7-5(15)]

This stationary source modification does not include any insignificant activities as defined in 326 IAC 2-7-1(21).

### A.4 Part 70 Permit Applicability [326 IAC 2-7-2]

This stationary source is required to have a Part 70 permit by 326 IAC 2-7-2 (Applicability) because:

- (a) It is a major source, as defined in 326 IAC 2-7-1(22);
- (b) It is a source in a source category designated by the United States Environmental Protection Agency (U.S. EPA) under 40 CFR 70.3 (Part 70 - Applicability).

## **SECTION B                      GENERAL CONSTRUCTION CONDITIONS**

### **B.1      Definitions [326 IAC 2-7-1]**

Terms in this permit shall have the definition assigned to such terms in the referenced regulation. In the absence of definitions in the referenced regulation, any applicable definitions found in the statutes or regulations (IC 13-11, 326 IAC 1-2 and 326 IAC 2-7) shall prevail.

### **B.2      Effective Date of the Permit [IC13-15-5-3]**

Pursuant to IC 13-15-5-3, this approval becomes effective upon its issuance.

### **B.3      Revocation of Permits [326 IAC 2-1.1-9(5)] [326 IAC 2-7-10.5(i)]**

Pursuant to 326 IAC 2-1.1-9(5)(Revocation of Permits), the Commissioner may revoke this approval if construction is not commenced within eighteen (18) months after receipt of this approval or if construction is suspended for a continuous period of one (1) year or more.

### **B.4      Significant Source Modification [326 IAC 2-7-10.5(h)]**

This document shall also become the approval to operate pursuant to 326 IAC 2-7-10.5(h) when, prior to start of operation, the following requirements are met:

- (a) The attached affidavit of construction shall be submitted to the Office of Air Quality (OAQ), Permit Administration & Development Section, verifying that the emission units were constructed as proposed in the application. The emissions units covered in the Significant Source Modification approval may begin operating on the date the affidavit of construction is postmarked or hand delivered to IDEM if constructed as proposed.
- (b) If actual construction of the emissions units differs from the construction proposed in the application, the source may not begin operation until the source modification has been revised pursuant to 326 IAC 2-7-11 or 326 IAC 2-7-12 and an Operation Permit Validation Letter is issued.
- (c) If construction is completed in phases; i.e., the entire construction is not done continuously, a separate affidavit must be submitted for each phase of construction. Any permit conditions associated with operation start up dates such as stack testing for New Source Performance Standards (NSPS) shall be applicable to each individual phase.
- (d) The Permittee shall receive an Operation Permit Validation Letter from the Chief of the Permit Administration & Development Section and attach it to this document.
- (e) In the event that the Part 70 application is being processed at the same time as this application, the following additional procedures shall be followed for obtaining the right to operate:
  - (1) If the Part 70 draft permit has not gone on public notice, then the change/addition covered by the Significant Source Modification will be included in the Part 70 draft.
  - (2) If the Part 70 permit has gone thru final EPA proposal and would be issued ahead of the Significant Source Modification, the Significant Source Modification will go through a concurrent 45 day EPA review. Then the Significant Source Modification will be incorporated into the final Part 70 permit at the time of issuance.
  - (3) If the Part 70 permit has not gone through public notice, but has not gone through final EPA review and would be issued after the Significant Source Modification is issued, then the Modification would be added to the proposed Part 70 permit, and the Title V permit will be issued after EPA review.

C.1	<p>Certification [326 IAC 2-7-4(f)] [326 IAC 2-7-6(1)] [326 IAC 2-7-5(3)(C)]</p> <p>(a) Where specifically designated by this permit or required by an applicable requirement, any application form, report, or compliance certification submitted shall contain certification by a responsible official of truth, accuracy, and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.</p> <p>(b) One (1) certification shall be included, using the attached Certification Form, with each submittal requiring certification.</p> <p>(c) A responsible official is defined at 326 IAC 2-7-1(34).</p>
C.2	<p>Preventive Maintenance Plan [326 IAC 2-7-5(1),(3) and (13)] [326 IAC 2-7-6(1) and (6)] [326 IAC 1-6-3]</p> <p>(a) If required by specific condition(s) in Section D of this permit, the Permittee shall prepare and maintain Preventive Maintenance Plans (PMPs) when operation begins, including the following information on each facility:</p> <ul style="list-style-type: none"> <li>(1) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices;</li> <li>(2) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions; and</li> <li>(3) Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.</li> </ul> <p>If due to circumstances beyond the Permittee's control, the PMPs cannot be prepared and maintained within the above time frame, the Permittee may extend the date an additional ninety (90) days provided the Permittee notifies:</p> <p>Indiana Department of Environmental Management Compliance Branch, Office of Air Quality 100 North Senate Avenue, P. O. Box 6015 Indianapolis, Indiana 46206-6015</p> <p>The PMP and the PMP extension notification do not require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).</p> <p>(b) The Permittee shall implement the PMPs as necessary to ensure that failure to implement a PMP does not cause or contribute to a violation of any limitation on emissions or potential to emit.</p> <p>(c) A copy of the PMPs shall be submitted to IDEM, OAQ, upon request and within a reasonable time, and shall be subject to review and approval by IDEM, OAQ. IDEM, OAQ, may require the Permittee to revise its PMPs whenever lack of proper maintenance causes or contributes to any violation. The PMP does not require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).</p> <p>(d) Records of preventive maintenance shall be retained for a period of at least five (5) years. These records shall be kept at the source location for a minimum of three (3) years. The records may be stored elsewhere for the remaining two (2) years as long as they are</p>

available upon request. If the Commissioner makes a request for records to the Permittee, the Permittee shall furnish the records to the Commissioner within a reasonable time.

C.3 Permit Amendment or Modification [326 IAC 2-7-11] [326 IAC 2-7-12]

(a) Permit amendments and modifications are governed by the requirements of 326 IAC 2-7-11 or 326 IAC 2-7-12 whenever the Permittee seeks to amend or modify this permit.

(b) Any application requesting an amendment or modification of this permit shall be submitted to:

Indiana Department of Environmental Management  
Permits Branch, Office of Air Quality  
100 North Senate Avenue, P.O. Box 6015  
Indianapolis, Indiana 46206-6015

Any such application should be certified by the "responsible official" as defined by 326 IAC 2-7-1(34).

(c) The Permittee may implement administrative amendment changes addressed in the request for an administrative amendment immediately upon submittal of the request. [326 IAC 2-7-11(c)(3)]

C.4 Opacity [326 IAC 5-1]

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary alternative opacity limitations), opacity shall meet the following, unless otherwise stated in this approval:

(a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

(b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

C.5 Fugitive Dust Emissions [326 IAC 6-4]

The Permittee shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4 (Fugitive Dust Emissions).

C.6 Operation of Equipment [326 IAC 2-7-6(6)]

Except as otherwise provided by statute or rule, or in this permit, all air pollution control equipment listed in this permit and used to comply with an applicable requirement shall be operated at all times that the emission unit vented to the control equipment is in operation.

C.7 Stack Height [326 IAC 1-7]

The Permittee shall comply with the applicable provisions of 326 IAC 1-7 (Stack Height Provisions), for all exhaust stacks through which a potential (before controls) of twenty-five (25) tons per year or more of particulate matter or sulfur dioxide is emitted by using ambient air quality modeling pursuant to 326 IAC 1-7-4.

### Testing Requirements [326 IAC 2-7-6(1)]

#### C.8 Performance Testing [326 IAC 3-6] [326 IAC 2-1.1-11]

- (a) Compliance testing on new emission units shall be conducted within 60 days after achieving maximum production rate, but no later than 180 days after initial start-up, if specified in Section D of this approval. All testing shall be performed according to the provisions of 326 IAC 3-6 (Source Sampling Procedures), except as provided elsewhere in this approval, utilizing any applicable procedures and analysis methods specified in 40 CFR 51, 40 CFR 60, 40 CFR 61, 40 CFR 63, 40 CFR 75, or other procedures approved by IDEM, OAQ.

A test protocol, except as provided elsewhere in this approval, shall be submitted to:

Indiana Department of Environmental Management  
Compliance Data Section, Office of Air Quality  
100 North Senate Avenue, P. O. Box 6015  
Indianapolis, Indiana 46206-6015

no later than thirty-five (35) days prior to the intended test date. The protocol submitted by the Permittee does not require certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

- (b) The Permittee shall notify IDEM, OAQ of the actual test date at least fourteen (14) days prior to the actual test date. The notification submitted by the Permittee does not require certification by the "responsible official" as defined by 326 IAC 2-7-1(34).
- (c) Pursuant to 326 IAC 3-6-4(b), all test reports must be received by IDEM, OAQ not later than forty-five (45) days after the completion of the testing. An extension may be granted by the IDEM, OAQ, if the source submits to IDEM, OAQ, a reasonable written explanation not later than five (5) days prior to the end of the initial forty-five (45) day period.

### Compliance Requirements [326 IAC 2-1.1-11]

#### C.9 Compliance Requirements [326 IAC 2-1.1-11]

The commissioner may require stack testing, monitoring, or reporting at any time to assure compliance with all applicable requirements. Any monitoring or testing shall be performed in accordance with 326 IAC 3 or other methods approved by the commissioner or the U. S. EPA.

### Compliance Monitoring Requirements [326 IAC 2-7-5(1)] [326 IAC 2-7-6(1)]

#### C.10 Compliance Monitoring [326 IAC 2-7-5(3)] [326 IAC 2-7-6(1)]

If required by Section D, all monitoring and record keeping requirements shall be implemented when operation begins. The Permittee shall be responsible for installing any necessary equipment and initiating any required monitoring related to that equipment.

#### C.11 Maintenance of Emission Monitoring Equipment [326 IAC 2-7-5(3)(A)(iii)]

- (a) In the event that a breakdown of the emission monitoring equipment occurs, a record shall be made of the times and reasons of the breakdown and efforts made to correct the problem. To the extent practicable, supplemental or intermittent monitoring of the parameter should be implemented at intervals no less frequent than required in Section D of this permit until such time as the monitoring equipment is back in operation. In the case of continuous monitoring, supplemental or intermittent monitoring of the parameter should be implemented at intervals no less often than once an hour until such time as the continuous monitor is back in operation.



- (b) The Permittee shall install, calibrate, quality assure, maintain, and operate all necessary monitors and related equipment. In addition, prompt corrective action shall be initiated whenever indicated.

**C.12 Monitoring Methods [326 IAC 3] [40 CFR 60] [40 CFR 63]**

Any monitoring or testing required by Section D of this permit shall be performed according to the provisions of 326 IAC 3, 40 CFR 60, Appendix A, 40 CFR 60 Appendix B, 40 CFR 63, or other approved methods as specified in this permit.

**C.13 Pressure Gauge and Other Instrument Specifications [326 IAC 2-1.1-11] [326 IAC 2-7-5(3)] [326 IAC 2-7-6(1)]**

- (a) Whenever a condition in this permit requires the measurement of pressure drop across any part of the unit or its control device, the gauge employed shall have a scale such that the expected normal reading shall be no less than twenty percent (20%) of full scale and be accurate within plus or minus two percent ( $\pm 2\%$ ) of full scale reading.
- (b) Whenever a condition in this permit requires the measurement of a flow rate, the instrument employed shall have a scale such that the expected normal reading shall be no less than twenty percent (20%) of full scale and be accurate within plus or minus two percent ( $\pm 2\%$ ) of full scale reading.
- (c) The Permittee may request the IDEM, OAQ approve the use of a pressure gauge or other instrument that does not meet the above specifications provided the Permittee can demonstrate an alternative pressure gauge or other instrument specification will adequately ensure compliance with permit conditions requiring the measurement of pressure drop or other parameters.

**Corrective Actions and Response Steps [326 IAC 2-7-5] [326 IAC 2-7-6]**

**C.14 Compliance Response Plan - Preparation, Implementation, Records, and Reports [326 IAC 2-7-5] [326 IAC 2-7-6]**

- (a) The Permittee is required to prepare a Compliance Response Plan (CRP) for each compliance monitoring condition of this permit. A CRP shall be submitted to IDEM, OAQ upon request. The CRP shall be prepared within ninety (90) days after issuance of this permit by the Permittee, supplemented from time to time by the Permittee, maintained on site, and comprised of:
  - (1) Reasonable response steps that may be implemented in the event that a response step is needed pursuant to the requirements of Section D of this permit; and an expected timeframe for taking reasonable response steps.
  - (2) If, at any time, the Permittee takes reasonable response steps that are not set forth in the Permittee's current Compliance Response Plan and the Permittee documents such response in accordance with subsection (e) below, the Permittee shall amend its Compliance Response Plan to include such response steps taken.
- (b) The Compliance Response Plan (CRP) for the green anode baking ring furnace shall consist of the Start-up, Shutdown, and Malfunction plan specified by 40 CFR 63.6(e)(3).
- (c) For each compliance monitoring condition of this permit, reasonable response steps shall be taken when indicated by the provisions of that compliance monitoring condition as follows:

- (1) Reasonable response steps shall be taken as set forth in the Permittee's current Compliance Response Plan; or
  - (2) If none of the reasonable response steps listed in the Compliance Response Plan is applicable or responsive to the excursion, the Permittee shall devise and implement additional response steps as expeditiously as practical. Taking such additional response steps shall not be considered a deviation from this permit so long as the Permittee documents such response steps in accordance with this condition.
  - (3) If the Permittee determines that additional response steps would necessitate that the emissions unit or control device be shut down, the IDEM, OAQ shall be promptly notified of the expected date of the shut down, the status of the applicable compliance monitoring parameter with respect to normal, and the results of the actions taken up to the time of notification.
  - (4) Failure to take reasonable response steps shall constitute a violation of the permit.
- (d) The Permittee is not required to take any further response steps for any of the following reasons:
- (1) A false reading occurs due to the malfunction of the monitoring equipment and prompt action was taken to correct the monitoring equipment.
  - (2) The Permittee has determined that the compliance monitoring parameters established in the permit conditions are technically inappropriate, has previously submitted a request for a minor permit modification to the permit, and such request has not been denied.
  - (3) An automatic measurement was taken when the process was not operating.
  - (4) The process has already returned or is returning to operating within "normal" parameters and no response steps are required.
- (e) When implementing reasonable steps in response to a compliance monitoring condition, if the Permittee determines that an exceedance of an emission limitation has occurred, the Permittee shall report such deviations pursuant to Section B-Deviations from Permit Requirements and Conditions.
- (f) The Permittee shall record all instances when response steps are taken. In the event of an emergency, the provisions of 326 IAC 2-7-16 (Emergency Provisions) requiring prompt corrective action to mitigate emissions shall prevail.
- (g) Except as otherwise provided by a rule or provided specifically in Section D, all monitoring as required in Section D shall be performed when the emission unit is operating, except for time necessary to perform quality assurance and maintenance activities.

**C.15 Emergency Provisions [326 IAC 2-7-16]**

- (a) An emergency, as defined in 326 IAC 2-7-1(12), is not an affirmative defense for an action brought for noncompliance with a federal or state health-based emission limitation.
- (b) An emergency, as defined in 326 IAC 2-7-1(12), constitutes an affirmative defense to an action brought for noncompliance with a technology-based emission limitation if the affirmative defense of an emergency is demonstrated through properly signed, contemporaneous operating logs or other relevant evidence that describe the following:

- (1) An emergency occurred and the Permittee can, to the extent possible, identify the causes of the emergency;
- (2) The permitted facility was at the time being properly operated;
- (3) During the period of an emergency, the Permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards or other requirements in this permit;
- (4) For each emergency lasting one (1) hour or more, the Permittee notified IDEM, OAQ, Southwest Regional Office within four (4) daytime business hours after the beginning of the emergency, or after the emergency was discovered or reasonably should have been discovered;

Telephone Number: 1-800-451-6027 (ask for Office of Air Quality, Compliance Section), or

Telephone Number: 317-233-5674 (ask for Compliance Section)

Facsimile Number: 317-233-5967

Southwest Regional Office Telephone Number: 888-672-8323

Southwest Regional Office Facsimile. Number: 812-436-2572

- (5) For each emergency lasting one (1) hour or more, the Permittee submitted the attached Emergency Occurrence Report Form or its equivalent, either by mail or facsimile to:

Indiana Department of Environmental Management  
Compliance Branch, Office of Air Quality  
100 North Senate Avenue, P. O. Box 6015  
Indianapolis, Indiana 46206-6015

within two (2) working days of the time when emission limitations were exceeded due to the emergency.

The notice fulfills the requirement of 326 IAC 2-7-5(3)(C)(ii) and must contain the following:

- (A) A description of the emergency;
- (B) Any steps taken to mitigate the emissions; and
- (C) Corrective actions taken.

The notification which shall be submitted by the Permittee does not require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

- (6) The Permittee immediately took all reasonable steps to correct the emergency.
- (c) In any enforcement proceeding, the Permittee seeking to establish the occurrence of an emergency has the burden of proof.
  - (d) This emergency provision supersedes 326 IAC 1-6 (Malfunctions). This permit condition is in addition to any emergency or upset provision contained in any applicable requirement.
  - (e) IDEM, OAQ, may require that the Preventive Maintenance Plans required under 326 IAC

2-7-4-(c)(10) be revised in response to an emergency.

- (f) Failure to notify IDEM, OAQ, by telephone or facsimile of an emergency lasting more than one (1) hour in accordance with (b)(4) and (5) of this condition shall constitute a violation of 326 IAC 2-7 and any other applicable rules.
- (g) If the emergency situation causes a deviation from a technology-based limit, the Permittee may continue to operate the affected emitting facilities during the emergency provided the Permittee immediately takes all reasonable steps to correct the emergency and minimize emissions.

**C.16 Actions Related to Noncompliance Demonstrated by a Stack Test [326 IAC 2-7-5] [326 IAC 2-7-6]**

- (a) When the results of a stack test performed in conformance with Section C - Performance Testing, of this permit exceed the level specified in any condition of this permit, the Permittee shall take appropriate response actions. The Permittee shall submit a description of these response actions to IDEM, OAQ, within thirty (30) days of receipt of the test results. The Permittee shall take appropriate action to minimize excess emissions from the affected facility while the response actions are being implemented.
- (b) A retest to demonstrate compliance shall be performed within one hundred twenty (120) days of receipt of the original test results. Should the Permittee demonstrate to IDEM, OAQ that retesting in one-hundred and twenty (120) days is not practicable, IDEM, OAQ may extend the retesting deadline.
- (c) IDEM, OAQ reserves the authority to take any actions allowed under law in response to noncompliant stack tests.

The documents submitted pursuant to this condition do require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

**Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]**

**C.17 General Record Keeping Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-6]**

- (a) Records of all required data, reports and support information shall be retained for a period of at least five (5) years from the date of monitoring sample, measurement, report, or application. These records shall be kept at the source location for a minimum of three (3) years. The records may be stored elsewhere for the remaining two (2) years as long as they are available upon request. If the Commissioner makes a request for records to the Permittee, the Permittee shall furnish the records to the Commissioner within a reasonable time.
- (b) Unless otherwise specified in this permit, all record keeping requirements not already legally required shall be implemented within ninety (90) days of permit issuance.

**C.18 General Reporting Requirements [326 IAC 2-7-5(3)(C)]**

- (a) The reports required by conditions in Section D of this permit shall be submitted to:  
  
Indiana Department of Environmental Management  
Compliance Data Section, Office of Air Quality  
100 North Senate Avenue, P. O. Box 6015  
Indianapolis, Indiana 46206-6015
- (b) Unless otherwise specified in this permit, any notice, report, or other submission required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the

date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ, on or before the date it is due.

- (c) Unless otherwise specified in this permit, all reports required in Section D of this permit shall be submitted within thirty (30) days of the end of the reporting period. All reports do require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).
- (d) The first report shall cover the period commencing on the date of issuance of this permit and ending on the last day of the reporting period. Reporting periods are based on calendar years.

C.19 Application Requirements for Section 112(j) of the Clean Air Act [40 CFR 63.52(e) and 326 IAC 2-7-12]

- (a) The Permittee shall submit a Part 2 Maximum Achievable Control Technology (MACT) Application in accordance with 40 CFR 63.52(e)(1). The Part 2 MACT Application shall meet the requirements of 40 CFR 63.53(b).
- (b) Notwithstanding paragraph (a), the Permittee is not required to submit a Part 2 MACT Application if the Permittee no longer meets the applicability criteria of 40 CFR 63.50 by the application deadline in 40 CFR 63.52(e)(1). For example, the Permittee would not have to submit a Part 2 MACT Application if, by the application deadline:
  - (1) The source is no longer a major source of hazardous air pollutants, as defined in 40 CFR 63.2;
  - (2) The source no longer includes one or more units in an affected source category for which the U.S. EPA failed to promulgate an emission standard by May 15, 2002; or
  - (3) The MACT standard or standards for the affected source categories included at the source are promulgated.
- (c) Notwithstanding paragraph (a), the Permittee shall comply with an applicable promulgated MACT standard, including the initial notification requirements of the MACT standard, in accordance with the schedule provided in the MACT standard, if the MACT standard is promulgated prior to the Part 2 MACT Application deadline. If a MACT has been promulgated and the source is subject to the MACT, the Permittee shall submit an application for a significant permit modification under 326 IAC 2-7-12 no later than nine (9) months prior to the compliance date for the MACT. The application should include information regarding which portions of the MACT are applicable to the emission units at the source and which compliance options will be followed. If a permit renewal application is due before the date that a significant permit modification application would be due, the Permittee shall include the required information in the renewal application in lieu of submitting an application for a significant permit modification.

## SECTION D.1

## FACILITY OPERATION CONDITIONS

### Facility Description [326 IAC 2-7-5(15)]: Green anode baking ring furnace and dross cooling

- (a) One (1) above-ground, natural gas-fired, green anode baking ring furnace, known as Bldg. 295 Anode Baking Ring Furnace, equipped with a baghouse for particulate matter control and a dry alumina scrubber for TF and SO<sub>2</sub> control, exhausting through Stacks 265D.1, 265D.2, 265D.3, 265D.4, 265D.5, 265D.6, 265D.8, and 265J.1, capacity: 23.15 tons of green anodes per hour.
- (b) One (1) dross cooling operation, equipped with four (4) baghouses for PM<sub>10</sub> control, capacity: 28.2 tons per hour.

(The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

### Emission Limitations and Standards [326 IAC 2-7-5(1)]

#### D.1.1 General Provisions Relating to HAPs [326 IAC 20-1-1] [40 CFR Part 63, Subpart A]

The provisions of 40 CFR 63 Subpart A - General Provisions, which are incorporated as 326 IAC 20-1-1, apply to the one (1) green anode baking ring furnace described in this section except when otherwise specified in 40 CFR 63 Subpart LL.

#### D.1.2 Existing Anode Baking Furnace Emission Limits [326 IAC 20-24-1] [40 CFR Part 63.843(c), Subpart LL]

Pursuant to 40 CFR 63.843(c), the Permittee shall not discharge or cause to be discharged into the atmosphere any emissions of total fluorides (TF) or polycyclic organic matter (POM) in excess of the following limits:

- (a) Emissions of TF shall not exceed 0.20 pounds per ton of green anode; and
- (b) Emissions of POM shall not exceed 0.18 pounds per ton of green anode.

Pursuant to 40 CFR 60.190(c), the emission limits also satisfy the requirements of 40 CFR 60 Subpart S.

#### D.1.3 Prevention of Significant Deterioration [326 IAC 2-2] [40 CFR 52.21]

The following limits shall apply to the green anode baking ring furnace:

- (a) The input of green anodes to the green anode baking ring furnace shall be limited to 202,280 tons per twelve (12) consecutive month period.
- (b) The emission rate of PM and PM<sub>10</sub> shall not exceed 0.745 pounds per ton of green anode, each.
- (c) The emission rate of SO<sub>2</sub> shall not exceed 1.03 pounds of SO<sub>2</sub> per ton of green anode, and
- (d) The emission rate of CO shall not exceed 3.57 pounds of CO per ton of green anode.
- (e) Any change or modification that increases net lead emissions of this modification to greater than PSD Significant levels, shall require prior IDEM, OAQ, approval.

The following limits shall apply to the dross cooling operation:

- (f) The throughput of dross through the dross cooling operation shall be limited to 38,000 tons per twelve (12) consecutive month period, and
- (g) The emission rate of PM<sub>10</sub> shall not exceed 0.454 pounds per ton of dross throughput.

The following limits shall apply to the facilities located within the Green Anode Production Mill:

- (h) The emission rate of PM and PM<sub>10</sub> from fresh petroleum coke screening shall not exceed 0.400 pounds per ton, each.
- (i) The emission rate of PM and PM<sub>10</sub> from the fresh petroleum coke hammermill shall not exceed 0.360 pounds per ton, each.
- (j) The emission rate of PM and PM<sub>10</sub> from the fresh petroleum coke intermediate classifier shall not exceed 0.710 pounds per ton, each.
- (k) The emission rate of PM and PM<sub>10</sub> from the ball mill classifier shall not exceed 0.580 pounds per ton, each.
- (l) The emission rate of VOC from coal tar pitch receiving shall not exceed 0.270 pounds per ton.
- (m) The emission rate of PM<sub>10</sub> from butts, pitch, and fresh coke mixing shall not exceed 0.004 pounds per ton.
- (n) The emission rate of PM from butts, pitch, and fresh coke mixing shall not exceed 0.023 pounds per ton.
- (o) The emission rate of PM<sub>10</sub> from the green anode forming operation (pitch fume treatment system) shall not exceed 0.027 pounds per ton.
- (p) The emission rate of PM from the green anode forming operation (pitch fume treatment system) shall not exceed 0.060 pounds per ton.
- (q) The emission rate of VOC from the green anode forming operation (pitch fume treatment system) shall not exceed 0.018 pounds per ton.
- (r) The emission rate of PM<sub>10</sub> from the anode butt blasting machine shall not exceed 0.010 pounds per ton.
- (s) The emission rate of PM from the anode butt blasting machine shall not exceed 0.012 pounds per ton.
- (t) The emission rate of PM<sub>10</sub> from the anode butts impactor shall not exceed 0.076 pounds per ton.
- (u) The emission rate of PM from the anode butts impactor shall not exceed 0.100 pounds per ton.
- (v) The emission rate of PM<sub>10</sub> from anode crushed butts storage shall not exceed 0.003 pounds per ton.
- (w) The emission rate of PM from anode crushed butts storage shall not exceed 0.011 pounds per ton.

- (x) The emission rate of  $PM_{10}$  from anode busbar cleaning shall not exceed 0.0009 pounds per bar cleaned.
- (y) The emission rate of PM from anode busbar cleaning shall not exceed 0.018 pounds per bar cleaned.
- (z) The emission rate of  $PM_{10}$  from finished anode cast iron processing shall not exceed 0.330 pounds per ton of iron melted.
- (aa) The emission rate of PM finished anode cast iron processing shall not exceed 0.410 pounds per ton of iron melted.

The throughput limits in Conditions D.1.3(a) and (f) in combination with these emission limits specified by Conditions D.1.3 (b) through (e) and (g) render the requirements of 326 IAC 2-2 and 40 CFR 52.21 not applicable to the green anode baking ring furnace.

#### D.1.4 Nonapplicability

- (a) The requirement from 87-08-91-0111, issued November 4, 1989, Condition 19, Baked Carbon Production, has not been included in the Significant Source Modification. The production limit in Condition 19 from 87-08-91-0111 has been changed to the green anode input limitation in Condition D.1.3(a). Thus, Condition 19 of 87-08-91-0111 is hereby rescinded.
- (b) The requirements from 87-08-91-0111, issued November 4, 1989, Conditions 4 through 7, and 21, to comply with 40 CFR 60 Subpart S, have not been included in the Significant Source Modification. Pursuant, to 40 CFR 60.190(c), Alcoa, Inc. - Warrick Operation has elected to comply with the requirements of 40 CFR 63 Subpart LL. Thus, Conditions 4 through 7, and 21 are hereby rescinded.

#### D.1.5 Particulate Matter (PM) [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2 (Particulate emission limitations, work practices, and control technologies), the allowable PM emission rate for the one (1) green anode baking ring furnace, shall not exceed 33.7 pounds per hour, total when operating at a process weight rate of 17.2 tons per hour and the allowable PM emission rate for the dross cooling operation, shall not exceed 38.4 pounds per hour total when operating at a process weight rate of 28.2 tons per hour.

The pounds per hour limitations were calculated with the following equation:

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$$E = 4.10 P^{0.67} \quad \text{where } E = \text{rate of emission in pounds per hour; and} \\ P = \text{process weight rate in tons per hour}$$

#### D.1.6 Control Technology Review; Requirements [326 IAC 2-2-3]

Pursuant to 326 IAC 2-2-3 (BACT) and Conditions 9 and 10 of 87-08-91-0111, issued November 4, 1989:

- (a) Sulfur dioxide emissions from the A446 dry alumina scrubber shall be limited to 1.13 tons per day, and 35 tons per month, and 412 tons per rolling twelve (12) consecutive month period.
- (b) ALCOA shall use the lowest sulfur content coal tar pitch commercially available. This shall be limited to a maximum, of 0.80% sulfur.



- (1) Should pitch with a sulfur content of 0.80% become unavailable and the monthly average pitch sulfur content exceed this limit, then ALCOA shall have thirty (30) days from the end of the month in violation to provide to the OAQ documentation that lower sulfur pitch is not available and documentation for a new proposed pitch sulfur content BACT limit. The BACT limit in (a) above shall remain in effect until such time as the Commissioner approves a revised pitch sulfur content BACT limit. However, enforcement action will not be taken until such time as ALCOA has been given the opportunity to support, request and obtain approval for a revised BACT limit as described above. Testing to establish a new A446 inlet SO<sub>2</sub> emission rate, similar to that described below, will be required as part of any revised BACT limit approval.
- (2) If the monthly average sulfur content of the pitch used in the anodes exceeds 0.75% for any calendar month, then ALCOA shall report this to OAQ within thirty (30) days. This notification shall include a discussion of the reason the pitch sulfur content has increased and whether ALCOA has been able, or will be able, to obtain pitch with sulfur content below 0.75%. If pitch with a sulfur content of less than 0.75% is not available, then ALCOA shall submit documentation of this and, within ninety (90) days of the notification, conduct an A446 dry scrubber SO<sub>2</sub> inlet (ring furnace outlet) test to reestablish the SO<sub>2</sub> inlet emission rate pursuant to 326 IAC 7-4-10(a)(4)(H), previously established in Condition No. 8 of 87-08-91-0111, issued November 4, 1989. This test shall be conducted pursuant to 326 IAC 3-2 at the current maximum achievable anode production rate and the result will be used to determine compliance.

**D.1.7 Warrick County Sulfur Dioxide Emission Limitations [326 IAC 7-4-10]**

Pursuant to 326 IAC 7-4-10(a)(4)(H), the sulfur dioxide emissions from the green anode baking ring furnace shall not exceed 94.1 pounds per hour and 412 tons per twelve (12) consecutive month period.

**D.1.8 Natural Gas Usage Limitation**

Pursuant to Condition 17 of 87-08-91-0111, issued November 4, 1989, natural gas throughput to the green anode baking ring furnace shall be limited to 75 million cubic feet per month and 600 million cubic feet per twelve (12) consecutive month period.

**D.1.9 Preventive Maintenance Plan [326 IAC 2-7-5(13)]**

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for this facility and any control devices.

**Compliance Determination Requirements**

**D.1.10 TF and POM Testing Requirements [326 IAC 20-24-1] [40 CFR Part 63, Subpart LL]**

- (a) Pursuant to 40 CFR 63.847(d)(4), the Permittee shall conduct an initial performance test within 180 days after initial startup and all subsequent performance tests in accordance with the requirements of the general provisions in 40 CFR 63 Subpart A of this part, the approved test plan, and the procedures in Condition D.1.10(b).

- (b) Pursuant to 40 CFR 63.849(a), the Permittee shall use the following reference methods to determine compliance with the applicable emission limits for TF and POM emissions:

Method 13A or Method 13B in Appendix A to Part 60 of 40 CFR or an approved alternative, for the concentration of TF where stack or duct emissions are sampled.

- (c) In order to demonstrate compliance with Condition D.1.2, the Permittee shall measure and record the emission rate of TF and POM from the green anode baking ring furnace exiting the exhaust stacks of the baghouse and dry alumina scrubber.

D.1.11 Anode Bake Furnace Compliance Determination [326 IAC 20-24-1] [40 CFR Part 63, Subpart LL]

The Permittee shall determine compliance with the applicable TF and POM emission limits using the following equations and procedures:

- (a) Compute the emission rate (Eb) of TF from the anode bake furnace the following equation,

$$Eb = \frac{(Cs \times Qsd)}{(Pb \times K)}$$

Eb	=	emission rate of TF, kg/Mg (lb/ton) of green anodes produced
Cs	=	concentration of TF, Mg/dscm (Mg/dscf)
Qsd	=	volumetric flow rate of effluent gas (dscf/hr)
Pb	=	quantity of green anode material placed in furnace, Mg/hr (ton/hr); and
K	=	conversion factor, 10 <sup>6</sup> Mg/kg (453,600)

- (b) Compute the emission rate of POM from the anode bake furnace using the equation above,

Where:

Eb	=	emission rate of POM, kg/Mg (lb/ton) of green anodes produced and
Cs	=	concentration of POM, Mg/dscm (Mg/dscf)

D.1.12 Testing Requirements [326 IAC 2-7-6(1),(6)] [326 IAC 2-1.1-11]

- (a) Within 180 days after startup of the green anode baking ring furnace, in order to demonstrate compliance with Condition D.1.3(b) the Permittee shall perform PM and PM<sub>10</sub> testing for the green anode baking ring furnace, utilizing methods as approved by the Commissioner. PM<sub>10</sub> includes filterable and condensable PM<sub>10</sub>. Testing shall be conducted in accordance with Section C- Performance Testing.
- (b) Within 180 days after startup of the green anode baking ring furnace, in order to demonstrate compliance with Condition D.1.3(c) the Permittee shall perform SO<sub>2</sub> testing for the green anode baking ring furnace, utilizing methods as approved by the Commissioner. Testing shall be conducted in accordance with Section C- Performance Testing.
- (c) Within 180 days after startup of the green anode baking ring furnace, in order to demonstrate compliance with Condition D.1.3(g) the Permittee shall perform PM<sub>10</sub> testing for the dross cooling operation, utilizing methods as approved by the Commissioner. PM<sub>10</sub> includes filterable and condensable PM<sub>10</sub>. Testing shall be conducted in accordance with Section C- Performance Testing.
- (d) Within 180 days after startup of the green anode baking ring furnace, in order to demonstrate compliance with Condition D.1.3(h) through (k), (m), (o), (r), (t), (v), and (z), the Permittee shall perform PM<sub>10</sub> testing for fresh petroleum coke screening, the fresh petroleum coke hammermill, the fresh petroleum coke intermediate classifier, the ball mill classifier, butts, pitch, and fresh coke mixing, green anode forming operations (pitch fume treatment system), the anode butt blast machine, the anode butts impactor, anode crushed butts storage and finished anode cast iron processing, utilizing methods as approved by the Commissioner. This test shall be repeated at least once every five (5) years from the date

of this valid compliance demonstration.  $PM_{10}$  includes filterable and condensable  $PM_{10}$ . Testing shall be conducted in accordance with Section C- Performance Testing.

**D.1.13 Particulate Matter (PM)**

- (a) In order to comply with Conditions D.1.3(b) and D.1.5, the baghouses for PM control shall be in operation at all times when the green anode baking ring furnace is in operation.
- (b) In order to comply with Conditions D.1.3(g) and D.1.5, three (3) out of the four (4) baghouses controlling PM from the dross cooling shall be in operation at all times when the dross cooling process is in operation.

**D.1.14 TF and  $SO_2$**

In order to comply with Conditions D.1.2(a), D.1.3(c), and D.1.6, the dry alumina scrubber for TF and  $SO_2$  control shall be in operation at all times when the green anode baking ring furnace is in operation.

**D.1.15 Sulfur Dioxide [326 IAC 2-2-3] [326 IAC 7-4-10(a)(4)]**

In order to comply with Conditions D.1.6 and D.1.7, the Permittee shall utilize the following methods and/or calculations:

- (a) Compliance with the pounds per hour limitations specified in 326 IAC 7-4-10(a)(4) shall be based on a stack test pursuant to 326 IAC 7-2-1(b).
- (b) Compliance with the tons per year limitations specified in 326 IAC 7-4-10(a)(4) shall be based on a rolling twelve (12) consecutive month emission total. Monthly sulfur dioxide emissions shall be determined from calendar month material balances using actual average sulfur content and material throughput.
- (c) Pursuant to Condition 11 of 87-08-91-0111, issued November 4, 1989, during a period when compliance data is not available, compliance shall be determined from the tested  $SO_2$  evolution (A446 inlet) emission factor of 3.69 pounds of  $SO_2$  per ton of baked carbon and the estimated A446 dry alumina scrubber  $SO_2$  removal efficiency based on the A446 feed rate.
  - (1) Daily records shall be used to calculate the average tons per hour baked carbon production rate and the average pounds per hour per reactor alumina feed rate for each day.
  - (2) The daily average pounds per reactor alumina feed rate shall be used to determine the daily average percent  $SO_2$  removal.
  - (3) The daily percent removal shall be used, with the  $SO_2$  evolution emission factor and the average production rate, to calculate the pounds per hour and pounds per ton of baked carbon daily average  $SO_2$  emission rates.
- (d) Pursuant to Condition 12 of 87-08-91-0111, issued November 4, 1989, compliance shall be determined based on the daily  $SO_2$  emission rates.
  - (1) The daily  $SO_2$  emission rates shall be calculated by multiplying the daily average pounds of  $SO_2$  per ton of baked carbon (as determined by Condition D.1.15(c)) times the daily baked carbon production to calculate the pounds per day  $SO_2$  emission rates.

- (2) The daily SO<sub>2</sub> emission rates shall then be summed to calculate the tons per month and the tons per twelve (12) consecutive month period SO<sub>2</sub> emission rates.

**Compliance Monitoring Requirements [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]**

**D.1.16 Emissions Monitoring Requirements [326 IAC 20-24-1] [40 CFR Part 63.848, Subpart LL]**

The following applies to the baghouse and dry alumina scrubber operating in the one (1) green anode baking ring furnace:

- (a) Pursuant to 40 CFR 63.848(c), using the procedures in Sec. 63.847 and in the approved test plan, the Permittee shall monitor TF and POM emissions from the anode bake furnace on an annual basis. The Permittee shall compute and record the annual average of TF and POM emissions from at least three (3) runs to determine compliance with the applicable emission limits. The Permittee must include all valid runs in the annual average.
- (b) Pursuant to 40 CFR 63.848(f), the Permittee shall install, operate, calibrate, and maintain a continuous parameter monitoring system for the baghouse and dry alumina scrubber. The Permittee shall install monitoring devices for the measurement of alumina flow and air flow for the dry alumina scrubber.
- (c) Pursuant to 40 CFR 63.848(f), Alcoa, Inc. - Warrick Operations submitted their compliance monitoring plan on April 23, 1999.
- (d) Pursuant to 40 CFR 63.848(g), the Permittee shall visually inspect the exhaust stacks of the baghouse and dry alumina scrubber on a daily basis for evidence of any visible emissions indicating abnormal operation.
- (e) Pursuant to 40 CFR 63.848(f), if a monitoring device for the baghouse and dry alumina scrubber measures an operating parameter outside the limits established pursuant to Sec. 63.847(h), if visible emissions indicating abnormal operation are observed from the exhaust stacks of the baghouse and dry alumina scrubber during a daily inspection, the Permittee shall initiate the corrective action procedures identified in the startup, shutdown, and malfunction plan within one (1) hour. Failure to initiate the corrective action procedures within one (1) hour or to take the necessary corrective actions to remedy the problem is a violation.
- (f) Pursuant to 40 CFR 63.848(j), the Permittee of an existing anode bake furnace shall install, operate, and maintain a monitoring device to determine the daily weight of aluminum produced and the weight of green anode material placed in the anode bake furnace. The weight of green anode material may be determined by monitoring the weight of all anodes or by monitoring the number of anodes placed in the furnace and determining an average weight from measurements of a representative sample of anodes.
- (g) Pursuant to 40 CFR 60.848(k), the Permittee shall submit recommended accuracy requirements to IDEM, OAQ, for review and approval. All monitoring devices required by this section must be certified by the Permittee to meet the accuracy requirements and must be calibrated in accordance with the manufacturer's instructions.
- (h) Pursuant to 40 CFR 60.848(l), the Permittee may monitor alternative baghouse and dry alumina scrubber operating parameters subject to prior written approval by IDEM, OAQ.

#### D.1.17 Bag Leak Detection System

The Permittee shall install and operate a continuous bag leak detection system for each exhaust stack of the green anode baking ring furnace and the cross cooling room. The bag leak detection system shall meet the following requirements:

- (a) Each triboelectric bag leak detection system shall be installed, calibrated, operated, and maintained according to the "Fabric Filter Bag Leak Detection Guidance," (September 1997).
- (b) The bag leak detection system shall be certified by the manufacturer to be capable of detecting PM emissions at concentrations of ten (10) milligrams per actual cubic meter (0.0044 grains per actual cubic foot) or less.
- (c) The bag leak detection system sensor shall provide output of relative or absolute PM loadings.
- (d) The bag leak detection system shall be equipped with a device to continuously record the output signal from the sensor.
- (e) The bag leak detection system shall be equipped with an alarm system that will sound automatically when an increase in relative PM emissions over a preset level is detected. The alarm shall be located where it is easily heard by plant operating personnel.
- (f) For negative pressure or induced air fabric filters, the bag leak detector shall be installed downstream of the fabric filter.
- (g) Where multiple detectors are required, the system's instrumentation and alarm may be shared among detectors.
- (h) The baseline output shall be established by adjusting the range and the averaging period of the device and establishing the alarm set points and the alarm delay time.
- (i) Following initial adjustment of the system, the Permittee shall not adjust the sensitivity or range, averaging period, alarm set points, or alarm delay time except as detailed in the Compliance Response Plan. In no case may the sensitivity be increased by more than one hundred (100%) percent or decreased more than fifty (50%) percent over a 365-day period unless such adjustment follows a complete fabric filter inspection which demonstrates that the fabric filter is in good operating condition.
- (j) In the event that a bag leak detection system should malfunction, fail or otherwise need repair, the Permittee shall perform visible emissions notations of the stack exhausts associated with that bag leak detection system as follows:
  - (1) Visible emission notations of the stack exhausts shall be performed once per day during normal daylight operations. A trained employee shall record whether emissions are normal or abnormal.
  - (2) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.
  - (3) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.

- (4) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.
- (5) The Compliance Response Plan for the green anode baking ring furnace and the dross cooling operation shall contain troubleshooting contingency and response steps for when an abnormal emission is observed.

#### D.1.18 Bag Leak Detection Alarm Activation

In the event that a bag leak detection system alarm is activated for any reason, the same corrective actions specified in the CRP for use during periods of startup, shutdown, and malfunction, shall be followed to correct the cause for the alarm, regardless of whether the alarm is caused by a malfunction as defined, the Permittee shall take the following response steps:

- (a) For the ring furnace A-446 pollution control system, which is a multi-compartment unit, corrective actions shall be initiated for the affected compartment in accordance with the CRP (SSM) plan within one (1) hour.

In the event of baghouse failure, operations may continue only if there are no visible emissions or if the event qualifies as an emergency and the Permittee satisfies the emergency provisions of this permit (Section B- Emergency Provisions). Within eight (8) business hours of the determination of failure, response steps according to the timetable described in the Compliance Response Plan shall be initiated. For any failure with corresponding response steps and timetable not described in the Compliance Response Plan, response steps shall be devised within eight (8) business hours of discovery of the failure and shall include a timetable for completion. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports, shall be considered a violation of this permit.

- (b) For the four (4) dross cooling operation baghouses which are single compartment baghouses, when more than one (1) of the four (4) units fail, failed units and the associated process will be shut down immediately until the failed units have been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

### **Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]**

#### D.1.19 Anode Baking Furnace Record Keeping and Reporting Requirements [326 IAC 20-24-1] [40 CFR Part 63, Subpart LL]

Pursuant to 40 CFR 63.850(e), the Permittee shall maintain files of all information (including all reports and notifications) required by Sec. 63.10(b) and by 40 CFR 63 Subpart LL.

In addition to the general records required by Sec. 63.10(b), the Permittee shall maintain records of the following information:

- (a) Daily production rate of green anode material placed in the anode bake furnace;
- (b) A copy of the startup, shutdown, and malfunction plan;
- (c) Records, such as a checklist or the equivalent, demonstrating that the daily visual inspection of the exhaust stacks for the baghouse and dry alumina scrubber has been performed as required in Sec. 63.848(g), including the results of each inspection;

- (d) Records documenting the corrective actions taken when the limits for an operating parameter established under Sec. 63.847(h) were exceeded, when visible emissions indicating abnormal operation were observed from the baghouse and dry alumina scrubber stacks during a daily inspection required under Sec. 63.848(g).

#### D.1.20 Record Keeping Requirements

- (a) To document compliance with Condition D.1.3(a), the Permittee shall maintain monthly records of the throughput of green anodes to the green anode baking ring furnace.
- (b) To document compliance with Condition D.1.3(f), the Permittee shall maintain monthly records of the throughput of the dross cooling operation.
- (c) To document compliance with Conditions D.1.6 and D.1.15:
  - (1) Records of the A446 outlet SO<sub>2</sub> emission rates and of the dry alumina scrubber operations shall be maintained for the most recent twenty-four (24) month period and made available to the OAQ upon request.

Records of the dry alumina scrubber operations shall include the following:

- (A) An estimate of the daily average alumina feed rates in pounds per hour per reactor;
    - (B) The time periods when either of the reactors is out of service; and
    - (C) The time periods when either of the reactors is out of service and summary of all maintenance (routine, preventative or malfunction related) done on the A446 system.
  - (2) Records of pitch sulfur content based on vendor analysis shall be maintained for the most recent twenty-four (24) month period and made available to the OAQ upon request.
- (d) To document compliance with Condition D.1.7, the Permittee shall maintain calendar month material balances using actual average sulfur content and material throughput.
- (e) To document compliance with Condition D.1.8, records of the monthly ring furnace natural gas throughput shall be maintained for the most recent twenty-four (24) month period and made available to the OAQ upon request.
- (f) To document compliance with Condition D.1.17, the Permittee shall maintain records of visible emission notations of the green anode baking ring furnace and dross cooling operation stack exhausts once per day when the applicable bag leak detection system malfunctions, fails or otherwise needs repair.
- (g) To document compliance with Condition D.1.18, the Permittee shall maintain records of the occurrences of all bag leak detection alarms and the response steps.
- (h) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

#### D.1.21 Reporting Requirements

- (a) A quarterly summary of the information to document compliance with Conditions D.1.3(a) and (f), D.1.6 through D.1.8 and D.1.15 shall be submitted to the addresses listed in Section

C - General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported. The report submitted by the Permittee does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

- (b) Pursuant to 40 CFR Part 63.10(e)(3), the Permittee shall submit a report, or summary report, if measured emissions are in excess of the applicable standard. The report shall contain the information specified in 40 CFR Part 63.10(e)(3)(v) and be submitted semi-annually unless quarterly reports are required as a result of excess emissions. The report shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the semi-annually or if necessary after the end of the quarter being reported. The report submitted by the Permittee does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).



**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF AIR QUALITY**

**PART 70 SOURCE MODIFICATION  
CERTIFICATION**

Source Name: Alcoa, Inc. - Warrick Operations  
Source Address: Jct. IN Hwys. 66 & 61, Newburgh, Indiana 47629  
Mailing Address: Bldg. 860E, P.O. Box 10, Newburgh, Indiana 47629-0010  
Source Modification No.: SSM 173-15661-00007

**This certification shall be included when submitting monitoring, testing reports/results or other documents as required by this approval.**

Please check what document is being certified:

- 9 Test Result (specify) \_\_\_\_\_
- 9 Report (specify) \_\_\_\_\_
- 9 Notification (specify) \_\_\_\_\_
- 9 Affidavit (specify) \_\_\_\_\_
- 9 Other (specify) \_\_\_\_\_

I certify that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

Signature:

Printed Name:

Title/Position:

Date:

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF AIR QUALITY  
COMPLIANCE DATA SECTION**

**Part 70 Source Modification Quarterly Report**

Source Name: Alcoa, Inc. - Warrick Operations  
Source Address: Jct. IN Hwys. 66 & 61, Newburgh, Indiana 47629  
Mailing Address: Bldg. 860E, P.O. Box 10, Newburgh, Indiana 47629-0010  
Source Modification No.: SSM 173-15661-00007  
Facility: Green anode baking ring furnace  
Parameter: Throughput of green anodes  
Limit: 202,280 tons per twelve (12) consecutive month period.

YEAR: \_\_\_\_\_

Month	Green anodes (tons)	Green anodes (tons)	Green anodes (tons)
	This Month	Previous 11 Months	12 Month Total

9 No deviation occurred in this month.

9 Deviation/s occurred in this month.  
Deviation has been reported on: \_\_\_\_\_

Submitted by: \_\_\_\_\_

Title/Position: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Phone: \_\_\_\_\_

Attach a signed certification to complete this report.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF AIR QUALITY  
COMPLIANCE DATA SECTION**

**Part 70 Source Modification Quarterly Report**

Source Name: Alcoa, Inc. - Warrick Operations  
Source Address: Jct. IN Hwys. 66 & 61, Newburgh, Indiana 47629  
Mailing Address: Bldg. 860E, P.O. Box 10, Newburgh, Indiana 47629-0010  
Source Modification No.: SSM 173-15661-00007  
Facility: Green anode baking ring furnace dry scrubber  
Parameter: Sulfur Dioxide Emissions  
Limit: 35 tons per month and 412 tons per twelve (12) consecutive month period.  
Monthly sulfur dioxide emissions shall be determined from calendar month material balances using actual average sulfur content and material throughput.

YEAR: \_\_\_\_\_

Month	Sulfur Dioxide Emissions (tons)	Sulfur Dioxide Emissions (tons)	Sulfur Dioxide Emissions (tons)
	This Month	Previous 11 Months	12 Month Total

9 No deviation occurred in this month.

9 Deviation/s occurred in this month.  
Deviation has been reported on: \_\_\_\_\_

Submitted by: \_\_\_\_\_

Title/Position: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Phone: \_\_\_\_\_

Attach a signed certification to complete this report.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF AIR QUALITY  
COMPLIANCE DATA SECTION**

**Part 70 Source Modification Quarterly Report**

Source Name: Alcoa, Inc. - Warrick Operations  
Source Address: Jct. IN Hwys. 66 & 61, Newburgh, Indiana 47629  
Mailing Address: Bldg. 860E, P.O. Box 10, Newburgh, Indiana 47629-0010  
Source Modification No.: SSM 173-15661-00007  
Facility: Dross cooling operation  
Parameter: Throughput  
Limit: 38,000 tons per twelve (12) consecutive month period.

YEAR: \_\_\_\_\_

Month	Dross Throughput (tons)	Dross Throughput (tons)	Dross Throughput (tons)
	This Month	Previous 11 Months	12 Month Total

9 No deviation occurred in this month.

9 Deviation/s occurred in this month.  
Deviation has been reported on: \_\_\_\_\_

Submitted by: \_\_\_\_\_

Title/Position: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Phone: \_\_\_\_\_

Attach a signed certification to complete this report.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF AIR QUALITY  
COMPLIANCE DATA SECTION**

**Part 70 Source Modification Quarterly Report**

Source Name: Alcoa, Inc. - Warrick Operations  
Source Address: Jct. IN Hwys. 66 & 61, Newburgh, Indiana 47629  
Mailing Address: Bldg. 860E, P.O. Box 10, Newburgh, Indiana 47629-0010  
Source Modification No.: SSM 173-15661-00007  
Facility: Green anode baking ring furnace  
Parameter: Natural gas throughput  
Limit: 75 million cubic feet per month and 600 million cubic feet per twelve (12) consecutive month period.

YEAR: \_\_\_\_\_

Month	Natural Gas Usage (million cubic feet)	Natural Gas Usage (million cubic feet)	Natural Gas Usage (million cubic feet)
	This Month	Previous 11 Months	12 Month Total

9 No deviation occurred in this month.

9 Deviation/s occurred in this month.  
Deviation has been reported on: \_\_\_\_\_

Submitted by: \_\_\_\_\_

Title/Position: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Phone: \_\_\_\_\_

Attach a signed certification to complete this report.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF AIR QUALITY  
COMPLIANCE DATA SECTION**

**Part 70 Source Modification Quarterly Report**

Source Name: Alcoa, Inc. - Warrick Operations  
Source Address: Jct. IN Hwys. 66 & 61, Newburgh, Indiana 47629  
Mailing Address: Bldg. 860E, P.O. Box 10, Newburgh, Indiana 47629-0010  
Source Modification No.: SSM 173-15661-00007  
Facility: Green anode baking ring furnace dry scrubber  
Parameter: Maximum monthly calculated pounds of SO<sub>2</sub> per ton of baked carbon and  
the monthly average percentage sulfur of pitch used in anodes  
Limit: 3.69 pounds of SO<sub>2</sub> per ton of baked carbon and 0.80% Sulfur

YEAR: \_\_\_\_\_

Month	Maximum calculated pounds of SO <sub>2</sub> per ton of baked Carbon	Average % S of pitch used in anodes

9 No deviation occurred in this month.

9 Deviation/s occurred in this month.

Deviation has been reported on: \_\_\_\_\_

Submitted by: \_\_\_\_\_

Title/Position: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Phone: \_\_\_\_\_

Attach a signed certification to complete this report.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF AIR QUALITY  
COMPLIANCE DATA SECTION**

**Part 70 Source Modification Quarterly Report**

Source Name: Alcoa, Inc. - Warrick Operations  
Source Address: Jct. IN Hwys. 66 & 61, Newburgh, Indiana 47629  
Mailing Address: Bldg. 860E, P.O. Box 10, Newburgh, Indiana 47629-0010  
Source Modification No.: SSM 173-15661-00007  
Facility: Green anode baking ring furnace dry scrubber  
Parameter: Maximum calculated daily average pounds of SO<sub>2</sub> per hour, lowest and highest daily average alumina feed rate and the maximum average baked carbon production and associated aluminum feed rate.

**Year:** \_\_\_\_\_

Parameter	First month of the quarter	Second month of the quarter	Third month of the quarter
Maximum calculated daily average lbs SO <sub>2</sub> per hour (lbs/hr)			
Lowest daily average alumina feed rate (lbs/hr/reactor)			
Highest daily average alumina feed rate (lbs/hr/reactor)			
Maximum daily average baked carbon production rate (tons/hr)			
Daily average alumina feed rate on the day when the maximum daily average carbon production rate was attained(lbs/hr/reactor)			

9 No deviation occurred in this month.

9 Deviation/s occurred in this month.

Deviation has been reported on: \_\_\_\_\_

Submitted by: \_\_\_\_\_

Title/Position: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Phone: \_\_\_\_\_

Attach a signed certification to complete this report.

## Indiana Department of Environmental Management Office of Air Quality

### Addendum to the Technical Support Document for a Significant Source Modification to a Part 70 Operating Permit

<b>Source Name:</b>	<b>Alcoa, Inc. - Warrick Operations</b>
<b>Source Location:</b>	<b>Newburgh, Indiana</b>
<b>County:</b>	<b>Warrick County</b>
<b>SIC Code:</b>	<b>3334</b>
<b>Operation Permit No.:</b>	<b>T 173-6627-00007</b>
<b>Significant Source Modification No.:</b>	<b>SSM 173-15661-00007</b>
<b>Permit Reviewer:</b>	<b>Michael S. Schaffer</b>

On June 18, 2002, the Office of Air Quality (OAQ) had a notice published in the Evansville Courier, located in Evansville, Indiana, stating that Alcoa, Inc. - Warrick Operations had applied for a Significant Source Modification to a Part 70 Operating Permit to rebuild a green anode baking ring furnace. The notice also stated that OAQ proposed to issue a Significant Source Modification and provided information on how the public could review the proposed Significant Source Modification and other documentation. Finally, the notice informed interested parties that there was a period of thirty (30) days to provide comments on whether or not this Significant Source Modification to a Part 70 Operating Permit should be issued as proposed.

On July 12, 2002, Mr. Samuel Bruntz of Alcoa, Inc. - Warrick Operations submitted comments on the proposed Significant Source Modification to a Part 70 Operating Permit. The comments are as follows: The permit language, if changed, has deleted language as ~~strikeouts~~ and new language **bolded**.

#### **Comment 1:**

Condition C.7. – The exhaust stacks of the ring furnace do not meet the Good Engineering Practice criteria specified by 326 IAC 1-7. However, a PSD construction permit was issued for this source on June 2, 1981, authorizing SO<sub>2</sub> annual emissions that are more than twice the level of SO<sub>2</sub> emissions in this permit application. Such permit had to be supported by sufficient air quality modeling and/or monitoring to demonstrate that these less than GEP stack heights did not cause exceedances of available PSD increments, or result in ambient air quality violations. By virtue of the issuance of this draft permit, Alcoa Inc. – Warrick Operations (hereafter, Alcoa) concludes that, pursuant to 326 IAC 1-7-3(a), the Commissioner has determined that the present proposed SO<sub>2</sub> emission rate of 103.9 tons/yr. will not cause excessive ground level concentrations from the less than GEP stack heights at which the exhaust stacks have been operating. These stack heights will not be increased or decreased from their present heights.

#### **Response 1:**

Since the original PSD permit (87-08-91-0111, issued on November 4, 1989) authorized SO<sub>2</sub> emissions that were more than twice the level of SO<sub>2</sub> emissions in this permit application based on air quality modeling, Condition C.7 will be changed to reference ambient air quality modeling as follows:

#### **C.7     Stack Height [326 IAC 1-7]**

The Permittee shall comply with the applicable provisions of 326 IAC 1-7 (Stack Height Provisions), for all exhaust stacks through which a potential (before controls) of twenty-five (25) tons per year or more of particulate matter or sulfur dioxide is emitted by using ~~good engineering practices (GEP)~~ **ambient air quality modeling pursuant to 326 IAC 1-7-4.**



**Comment 2:**

Elimination of Conditions C.13, D.1.17, and D.1.20 (f) - When EPA developed the regulations governing HAP's emissions from primary aluminum reduction plants (40 CFR 63, Subpart LL), it specified emission control device parameters that had to be monitored. The required parameters are performance of daily exhaust stack inspections for visible emissions (for Polycyclic Organic Compounds (POM), and monitoring of alumina flow (for TF) and airflow (POM and TF). A review of 40 CFR 63, Subpart LL indicates that EPA did not impose pressure drop monitoring as a required compliance monitoring parameter. Had EPA considered pressure drop monitoring to be a meaningful compliance monitoring parameter for baghouse performance and POM control, they would certainly have imposed it. (Note that the compliance monitoring parameters which EPA requires for POM control will also effectively provide PM and PM<sub>10</sub> compliance assurance monitoring).

In developing the compliance monitoring requirements, EPA received and considered input from regulated entities and other stakeholders before finalizing the compliance monitoring requirements. As a stakeholder, IDEM had the opportunity to present input to EPA on the importance of performing pressure drop monitoring as an added compliance monitoring requirement, together with data supporting a pressure drop range indicative of proper performance. A review of the EPA summary of the comments received before regulation promulgation does not indicate that any comments were filed by IDEM in support of pressure drop monitoring, nor does it appear that data was presented by IDEM to EPA justifying the specification of a pressure drop range.

These proposed permit conditions would also apply to the four dross cooling room baghouses, because they will be used to provide contemporaneous PM<sub>10</sub> emissions decreases for the ring furnace project. EPA did not consider pressure drop monitoring to be a useful compliance monitoring parameter for a complex pollution control system, such as the ring furnace, and they have not imposed baghouse pressure drop monitoring as a compliance monitoring requirement in other MACT standards where simple baghouse control is required. An example is some of the affected facilities in the Secondary Aluminum MACT, such as shredders and rotary dross coolers.

IDEM has not provided data in the Technical Support Document demonstrating that pressure drop monitoring assures compliance, and seems to have been unsuccessful in convincing EPA that compliance is assured if baghouse pressure drop is maintained in a range of 3.0 – 6.0 inches of water, for the Primary Aluminum Reduction or other source categories.

Lastly, in developing the various "White Papers" on Title V permitting and Compliance Assurance Monitoring, the USEPA repeatedly stated that any compliance assurance monitoring implemented as a part of a NESHAP should be considered as sufficient for demonstrating compliance with the SIP limits for criteria pollutants controlled by the same control device required under the NESHAP.

Alcoa thus requests that these conditions be removed from the permit.

**Response 2:**

As a result of the appeal of 173-10959-00007, issued on July 15, 1999, IDEM, OAQ and IDEM, OLC and representatives from ALCOA Inc. resolved the appeal by issuing Permit Modification 173-11419-00007 on June 9, 2000. This modification stated that the use of a bag leak detection system satisfied the routine compliance monitoring requirements for baghouses and therefore, parametric monitoring, visible emission notations, baghouse inspections and broken or failed bag detection monitoring were no longer required.

The Condition C.13 clearly stated that "whenever a condition in this permit.." and even though the parametric monitoring requirement in Condition D.1.17 has been deleted, the retention of Condition

C.13 has no effect on the remainder of the permit conditions. If this permit is modified in the future, such that pressure drops or flow rates measurements are required, then Condition C.13 specifies what type of accuracy the instrument must have.

See the discussion on the bag leak detection system in Comment and Response 12 and the subsequent deletion of the routine visible emission notations, baghouse inspections and broken or failed bag detection monitoring conditions.

Therefore, Condition C.13 has been retained and Conditions D.1.17 and D.1.20(f) will be deleted as follows:

D.1.17 Parametric Monitoring

~~The Permittee shall record the total static pressure drop across the baghouses controlling the green anode baking ring furnace and the dross cooling, at least once per shift when green anode baking ring furnace and/or dross cooling process is in operation. Unless operated under conditions for which the Preventive Maintenance Plan specifies otherwise, the pressure drop across the baghouses shall be maintained within the range of 3.0 to 6.0 inches of water or a range established during the latest stack test. The Preventive Maintenance Plan for this unit shall contain troubleshooting contingency and corrective actions for when the pressure reading is outside of the above mentioned range for any one reading.~~

~~The instrument used for determining the pressure shall comply with Section C - Pressure Gauge Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated at least once every six (6) months.~~

D.1.20 Record Keeping Requirements

~~(h) — To document compliance with Condition D.1.19, the Permittee shall maintain the following:~~

- ~~(1) — Records of the total static pressure drop during normal operation when venting to the atmosphere once per shift and~~
- ~~(2) — Documentation of the dates vents are redirected.~~

**Comment 3:**

Revision of Condition C.14. - Alcoa is required to develop and implement a written Start-up, Shutdown, and Malfunction (SSM) plan for the ring furnace, because it is subject to 40 CFR 63, Subpart LL and 40 CFR 63.6(e)(3). These requirements require all of the corrective actions listed by the suggested condition. It is thus unnecessary "make-work " for Alcoa to be required to develop both the Compliance Response Plan (CRP) and SSM, when both documents accomplish the same purpose. Alcoa acknowledges that there are no 40 CFR 63 requirements that apply for the dross cooling room baghouses. It thus requests that the condition be amended to read as follows:

"The permittee is required to prepare and implement a written start-up, shutdown, and malfunction plan that meets the requirements of 40 CFR 63.6(e)(3) for the anode baking ring furnace, its pollution control system, and associated monitoring equipment. The Permittee is required to prepare a Compliance Response Plan (CRP) for each compliance monitoring condition of this permit that pertains to the dross cooling room baghouses. A CRP....."

On August 14, 2002, Samuel Bruntz from Alcoa, submitted the following additional information regarding Condition C.14 which highlight the differences between the two (2) plans:

Requirement		SSM Requirement	CRP Requirement
(A)	Minimum time period for initiation of corrective action	1 hour	Not specified
(B)	Response steps	Procedures for operating and maintaining the source during SSM periods, with a program of corrective action for malfunctioning process and pollution control equipment. The plan must identify all routine and predictable Compliance Monitoring System malfunctions.	Addresses compliance response actions needed for compliance monitoring conditions. The required response may have no correlation to compliance.
(C)	Baghouse Pressure Drop Monitoring	Not required, unless included in an SSM program of corrective action	Required to be addressed even though there are no known ranges for which compliance is assured.
(D)	Visible Emissions Notations	Daily	Once per shift during daylight hours
(E)	Response Steps are not Responsive	Program can be revised, if needed	Additional steps must be devised and implemented as expeditiously as practical.
(F)	Amendments	Notification must be provided in the next semi-annual Excess Emissions Report describing the amendment	Notification that an amendment has been made is not required
(G)	Exceedance of an Emissions Limitation	Notification must be provided in the next semi-annual Excess Emissions Report	Notification must be provided in the next quarterly report.

In order to meet the requirements of both the CRP and SSM, Alcoa would be required to amend its SSM to incorporate those provisions of CRP that differ. Alcoa would be in violation of 40 CFR 63, Subpart LL if it discarded its SSM and replaced it with a CRP. If Alcoa chose to amend its SSM to include the CRP provisions, it would be required to notify EPA of the amendment, and would then be required to take corrective actions for compliance monitoring conditions, such as baghouse pressure drop, that may or may not be indicative of a need to take corrective action. IDEM has made no finding that the current SSM for the ring furnace has not been responsive, so Alcoa questions the need to amend it to incorporate the CRP provisions. Alcoa also resists a requirement to prepare a CRP in addition to the SSM, because the SSM more than meets the requirements of the CRP.

### Response 3:

The IDEM agrees that the SSM Plan and the CRP are very similar, except that the CRP also applies during periods that are not start ups, shut downs, or malfunctions. Condition C.14 will be revised to incorporate the SSM Plan into the CRP by reference. Condition D.1.18 will be modified to ensure that responses are taken during periods that are not considered malfunctions under 40 CFR 63.2

C.14 Compliance Response Plan - Preparation, Implementation, Records, and Reports [326 IAC 2-7-5]  
[326 IAC 2-7-6]

- (a) The Permittee is required to prepare a Compliance Response Plan (CRP) for each compliance monitoring condition of this permit. A CRP shall be submitted to IDEM, OAQ upon request. The CRP shall be prepared within ninety (90) days after issuance of this permit by the Permittee, supplemented from time to time by the Permittee, maintained on site, and comprised of:
  - (1) Reasonable response steps that may be implemented in the event that a response step is needed pursuant to the requirements of Section D of this permit; and an expected timeframe for taking reasonable response steps.
  - (2) If, at any time, the Permittee takes reasonable response steps that are not set forth in the Permittee's current Compliance Response Plan and the Permittee documents such response in accordance with subsection (e) below, the Permittee shall amend its Compliance Response Plan to include such response steps taken.
- (b) **The Compliance Response Plan (CRP) for the green anode baking ring furnace shall consist of the Start-up, Shutdown, and Malfunction plan specified by 40 CFR 63.6(e)(3).**
- (cb) For each compliance monitoring condition of this permit, reasonable response steps shall be taken when indicated by the provisions of that compliance monitoring condition as follows:
  - (1) Reasonable response steps shall be taken as set forth in the Permittee's current Compliance Response Plan; or
  - (2) If none of the reasonable response steps listed in the Compliance Response Plan is applicable or responsive to the excursion, the Permittee shall devise and implement additional response steps as expeditiously as practical. Taking such additional response steps shall not be considered a deviation from this permit so long as the Permittee documents such response steps in accordance with this condition.
  - (3) If the Permittee determines that additional response steps would necessitate that the emissions unit or control device be shut down, the IDEM, OAQ shall be promptly notified of the expected date of the shut down, the status of the applicable compliance monitoring parameter with respect to normal, and the results of the actions taken up to the time of notification.
  - (4) Failure to take reasonable response steps shall constitute a violation of the permit.
- (de) The Permittee is not required to take any further response steps for any of the following reasons:
  - (1) A false reading occurs due to the malfunction of the monitoring equipment and prompt action was taken to correct the monitoring equipment.
  - (2) The Permittee has determined that the compliance monitoring parameters established in the permit conditions are technically inappropriate, has previously submitted a request for a minor permit modification to the permit, and such request has not been denied.

- (3) An automatic measurement was taken when the process was not operating.
- (4) The process has already returned or is returning to operating within "normal" parameters and no response steps are required.
- (ed) When implementing reasonable steps in response to a compliance monitoring condition, if the Permittee determines that an exceedance of an emission limitation has occurred, the Permittee shall report such deviations pursuant to Section B-Deviations from Permit Requirements and Conditions.
- (fe) The Permittee shall record all instances when response steps are taken. In the event of an emergency, the provisions of 326 IAC 2-7-16 (Emergency Provisions) requiring prompt corrective action to mitigate emissions shall prevail.
- (gf) Except as otherwise provided by a rule or provided specifically in Section D, all monitoring as required in Section D shall be performed when the emission unit is operating, except for time necessary to perform quality assurance and maintenance activities.

**Comment 4:**

Elimination of Conditions D.1.3 (h) through (aa) - Alcoa strenuously objects to the inclusion of these facilities and proposed emissions limits on this permit. Pursuant to 326 IAC 2-2-1(W), "Major modification" means any physical change in, or change in the method of operation of a major stationary source that would result in a significant net emissions increase of any pollutant that is being regulated under the CAA. The following shall apply:

- (3) Any net increase.....
- (4) A physical change or change in the method of operation shall not include the following:
  - (F) An increase in the hours of operation or in the production rate, unless such change would be prohibited under any enforceable permit condition which was established after January 6, 1975, pursuant to 40 CFR 52.21 or under this rule or 326 IAC 2-3.

The Green Anode Production Mill is not limited to operating hours or production by any enforceable permit conditions, and is thus not being modified, pursuant to 326 IAC 2-2. It thus appears that IDEM is trying to extract more PM / PM<sub>10</sub> emissions reductions for the re-built ring furnace than 326 IAC 2-2 provides for.

Furthermore, the June 13, 2002 New Source Review reforms announced by EPA Administrator Whitman specifically address the issue of increased equipment utilization, as follows:

**"(6) Debottlenecking**

Through notice and comment rulemaking, EPA will clarify that, when calculating actual emissions associated with a physical change or change in the method of operation, sources generally should look only at the unit undergoing the change. Emissions from units "upstream" or "downstream" of the unit being changed should be considered only when the permitted emissions limit of the upstream or downstream unit would be exceeded or increased as a result of the change."

In light of the upcoming change in the New Source Review program, Alcoa has no desire to accept the more stringent production and emission limits that are represented by Conditions D.1.3 (h) through (aa). These emission units are also not being modified as described by the NSR reform.

Alcoa also wishes to point out that, contrary to the statement made on page 2 of the Technical Support Document, it did not request that emissions from the Green Anode Production Mill facilities and/or processes be limited. It did provide an analysis comparing actual emissions from the last 2-year period when all 6 potlines ran to projected actual emissions when the re-built anode baking ring furnace attains full production. It did not agree to accept those projected actual emissions estimates as maximum allowable emissions.

Because the Green Anode Production Mill is not being modified as defined by 326 IAC 2-2, Alcoa requests that conditions D.1.3 (h) through D.1.3 (aa) be removed from the permit.

**Response 4:**

Alcoa, Inc. - Warrick Operations is physically deepening the pits of the green anode baking ring furnace and therefore, this modification is not merely a change in the production rate. The definition of Net Emission Increase includes all emission increases that are contemporaneous with the physical change.

The production limits on the Green Anode Production Mill facilities were necessary to limit the PM<sub>10</sub> emissions from the modification and the increased utilization of other Green Anode Production Mill facilities to less than the PSD Significant level of fifteen (15) tons of PM<sub>10</sub> per year.

Furthermore, IDEM does not have the authority to impose an U.S. EPA recommendation that has not yet become policy. The current U.S. EPA policy for debottlenecking remains in effect until the U.S. EPA recommendations change or become policy. Therefore, pursuant to the current U.S. EPA policy for debottlenecking, Conditions D.1.3(h) through (aa) have not been deleted.

**Comment 5:**

Revision of Conditions D.1.3 (b) and (g) – In its June 4, 2002 response to a notice of deficiency (NOD), Alcoa committed to limit dross cooling PM<sub>10</sub> emissions to 8.64 tons per year for a dross processing rate of 38,000 tons per year. This equates to a PM<sub>10</sub> emission limit of 0.455 pounds of PM<sub>10</sub> per ton of dross processed, rather than 0.445 pounds of PM<sub>10</sub> per ton of dross processed. Alcoa thus requests that Condition D.1.3(g) be revised as follows:

(g) The emission rate of PM<sub>10</sub> shall not exceed 0.455 pounds per ton of throughput.

The above dross processing emission limit, as provided in the June 4, 2002 NOD response, resulted in a 6.08 tons per year of PM<sub>10</sub> emissions decrease. Alcoa wishes to apply that decrease to the allowable PM<sub>10</sub> emissions for the re-built ring furnace. Thus, Alcoa requests that Condition D.1.3 (b) be amended as follows:

(b) The emission rate of PM and PM<sub>10</sub> shall not exceed 0.804 pounds per ton of green anode, each.

Together with these changes, Alcoa requests that the last sentence of the condition be re-written as follows:

“The throughput limit in Condition 1.3(a), in combination with the emission limits specified by Conditions D.1.3 (b) through (g) renders the requirements of 326 IAC 2-2 and 40 CFR 52.21 not applicable to the green anode baking ring furnace.”

**Response 5:**

In the source's NOD response, received June 4, 2002, the total increase in PM<sub>10</sub> emissions were reported to be calculated as 6.08 tons per year. However, due to consistent rounding of emission factors by the source, the number used to evaluate the increased utilization was an increase in PM<sub>10</sub> emissions of 6.09 tons per year. Therefore, in order to negate the 6.09 tons of PM<sub>10</sub> per year due to increased utilization, the source must limit PM<sub>10</sub> gross emissions to 8.63 tons per year instead of 8.64 tons per year. The original PM<sub>10</sub> emission rate for the dross cooling however, was not written accurately to represent 8.63 tons of PM<sub>10</sub> per year. Thus, the PM<sub>10</sub> emission rate will be changed from 0.445 to 0.454 pounds of PM<sub>10</sub> per ton for the dross cooling with a limited throughput of 38,000 tons per year. The PM<sub>10</sub> emission limit cannot increase to 0.455 pounds of PM<sub>10</sub> per ton of dross throughput in order to negate the increase in PM<sub>10</sub> emissions due to increased utilization. Note that 0.454 pounds of PM<sub>10</sub> per ton of dross with a throughput limit of 38,000 tons per year of dross is equivalent to PM<sub>10</sub> emission of 8.63 tons of PM<sub>10</sub> per year.

Since the U.S. EPA increased utilization policy has not been changed, the source's request to increase the emission rate of PM and PM<sub>10</sub> to 0.804 from 0.745 pounds per ton of green anode, each can not be accommodated at this time. Therefore, Condition D.1.3 (b) has not been revised.

The last paragraph of Condition D.1.3 references the throughput limit of green anodes in Condition D.1.3(a) and the throughput limit of dross in Condition D.1.3(f).

Therefore, Condition D.1.3(g) and the last paragraph of Condition D.1.3 have been revised as follows:

**D.1.3 Prevention of Significant Deterioration [326 IAC 2-2] [40 CFR 52.21]**

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(g) The emission rate of PM<sub>10</sub> shall not exceed ~~0.445~~ **0.454** pounds per ton of dross throughput.

The throughput limits in Conditions **D.1.3(a)** and **(f)** in combination with these emission limits **specified by Conditions D.1.3 (b) through (e) and (g)** render the requirements of 326 IAC 2-2 and 40 CFR 52.21 not applicable to the green anode baking ring furnace.

**Comment 6:**

Revision of Condition D.1.8 (a) - 40 CFR 63.847(c) specifies that, following approval of the site-specific test plan, a compliance test is required during the first month following the compliance date. 40 CFR 63.847(a) specifies that the compliance date is upon start-up for a new or re-constructed facility. 40 CFR 63.847(d) specifies that the tests must be conducted in conformance of the General Provisions of 40 CFR 63, Subpart A.

40 CFR 63, Subpart A. Section 63.7(a)(2)(ii) of Subpart A states that:

"Within 180 days after initial start-up for a new source that has an initial start-up date after the effective date of the relevant standard".

Alcoa also questions the need to submit a new site-specific test plan for the ring furnace, since it submitted such plan on August 3, 2001 (which IDEM subsequently approved). It commits herein to follow the provisions of that approved plan, since those provisions will still be applicable for the re-built ring furnace.

Based on the above discussion, Alcoa requests that Condition D.1.8 (a) be amended as follows:

"Pursuant to 40 CFR 63.847(c), the Permittee shall conduct an initial performance test within 180 days after initial start-up, in accordance with the procedures in 40 CFR 63.847 (d).

**Comment 7:**

Elimination of Conditions D.1.8 (c) (2) and (3) - These conditions are applicable for potlines roof monitor testing, and are not applicable for the ring furnace. Alcoa thus requests that these conditions be removed.

**Responses 6 and 7:**

In Condition D.1.8(a), the performance tests should be conducted within 180 days after initial start-up pursuant to 40 CFR 63.847(c) rather than during the first month.

Conditions D.1.8(c)(2) and (3) (now Condition D.1.10 (c)(2) and (3)) can be deleted since the exhaust from the anode baking ring furnace is through a baghouse and scrubber stacks, not roof monitors or wet roof scrubbers.

Therefore, Condition D.1.8(a) (now Condition D.1.10(a)) has been revised and Condition D.1.8(c) has been deleted as follows:

**D.1.10-8-TF and POM Testing Requirements [326 IAC 20-24-1] [40 CFR Part 63, Subpart LL]**

- (a) Pursuant to 40 CFR 63.847(c)(4), ~~following approval of the site-specific test plan, the Permittee shall conduct an initial performance test during the first month following~~ **within 180 days after initial startup and all subsequent performance tests** in accordance with **the requirements of the general provisions in 40 CFR 63 Subpart A of this part, the approved test plan, and the procedures in 40 CFR 63.847(d) Condition D.1.10(b).**
- ~~(b) Pursuant to 40 CFR 63.847(d), the initial performance test and all subsequent performance tests shall be conducted in accordance with the requirements of the general provisions in 40 CFR 63 Subpart A of this part, the approved test plan, and the procedures in Condition D.1.6(c).~~
- ~~(b)(c)~~ Pursuant to 40 CFR 63.849(a), the Permittee shall use the following reference methods to determine compliance with the applicable emission limits for TF and POM emissions:
  - ~~(1)~~ Method 13A or Method 13B in Appendix A to Part 60 of 40 CFR or an approved alternative, for the concentration of TF where stack or duct emissions are sampled.
  - ~~(2)~~ Method 13A or Method 13B and Method 14 or Method 14A in Appendix A to Part 60 of 40 CFR or an approved alternative method for the concentration of TF where emissions are sampled from roof monitors not employing wet roof scrubbers;
  - ~~(3)~~ Method 315 in Appendix A to this part and Method 14 in Appendix A to Part 60 of 40 CFR or an approved alternative method for the concentration of POM where emissions are sampled from roof monitors not employing wet roof scrubbers.
- ~~(c)(d)~~ In order to demonstrate compliance with Condition D.1.2, the Permittee shall measure and record the emission rate of TF and POM from the green anode baking ring furnace exiting the exhaust stacks of the baghouse and dry alumina scrubber.

**Comment 8:**

Elimination of Condition D.1.10 (d) - Alcoa did not commit to accept allowable emission limits on the Green Anode Production Mill and its associated processes. It thus requests that this condition be



removed from the permit.

**Response 8:**

Conditions D.1.3(h) through (aa) have not been deleted (see Response 4). The specified production and emission limits on the Green Anode Production Mill facilities in Condition D.1.3 are required in order for this modification to a major PSD source to remain a minor PSD modification. Therefore, the stack testing requirements specified in Condition D.1.10(d) (now Condition D.1.12(d)) for the facilities within the Green Anode Production Mill that are part of the increased utilization. Therefore, the testing requirement of Condition D.1.10(d) (now Condition D.1.12(d)) has not been deleted.

If Alcoa, Inc. - Warrick Operations does not accept the limits proposed in Conditions D.1.3(h) through (aa), then this modification would become significant and require Alcoa, Inc. - Warrick Operations to undergo PSD review pursuant to 326 IAC 2-2 and 40 CFR 52.21.

**Comment 9:**

Revision of Condition D.1.11 – The condition requires the baghouses for the ring furnace and dross cooling room to be in operation at all times when the ring furnace or dross cooling processes are in operation. Both operations are essentially continuous. The ring furnace baghouse has sufficient capacity that an entire reactor compartment can be shutdown for maintenance and other repairs and still provide adequate emissions control. This condition will thus not adversely impact ring furnace operations.

However, the dross cooling room exhausts through four (4) different baghouses. A literal reading of this condition would force dross cooling operations to cease any time any of the baghouses are down for maintenance. This, in turn, would put the ingot department on hold, because dross could not be processed until all four (4) baghouses were back on-line. If the baghouse needed to be down for an extended period of time, the pots could not be tapped, because the ingot furnaces would be full. This would cause the pots to go into an upset condition, with resulting adverse air pollution impacts. Emissions from dross cooling operations can be marginally controlled on a short term basis with two baghouses down for maintenance. Alcoa Inc. – Warrick Operations thus requests that this condition be amended, as follows:

“In order to comply with Conditions D.1.3(b), D.1.4 and D.1.5, the baghouse for PM control shall be in operation at all times when the green anode baking furnace process is in operation. In order to comply with Conditions D.1.3(g) and D.1.4, the baghouses for PM control shall be in operation at all times when the dross cooling process is in operation, unless it is necessary to have one of the baghouses down for maintenance. During periods of baghouse maintenance, dross cooling operations may continue, provided two (2) of the four (4) baghouses are in operation, and dross cooling processes are managed in a manner that prevents visible emissions from escaping the dross cooling room.”

On July 18, 2002, Alcoa submitted the following in order to further support Comment 9:

There are two (2) baghouses of approximately 18,000 cfm each. One (1) of these baghouses provides general room ventilation for the west end of the room, and the other similar sized baghouse provides general room ventilation for the east end of the room. Dross pans are positioned in either end of the building, and the left undisturbed until they are ready to be dumped. Fumes are captured by these two (2) smaller baghouses. There are also two (2) baghouses that provide approximately 40,000 cfm each. These baghouses provide emissions capture via canopy hoods in the center of the room, where dross is dumped from the pans. Either of these baghouses also provides fume capture for a canopy hood system under which dross trucks are loaded. All of these operations are

performed in an enclosed building.

If one (1) of the smaller baghouses is down for maintenance, the dross can be positioned in the room segment with the operational baghouse. If one (1) of the larger baghouses is down, dampers allow re-routing of emissions to the operating baghouse.

As long as emissions are contained in the dross cooling building while some of the baghouses are down for repair, continued compliance could be assured by a once per day inspection of the dross building to verify that there are no visible emissions escaping the building. The broken bag detectors on the operating baghouses will provide a trend indication on baghouse performance.

The CRP will specify the response steps that will assure that the above items are being addressed while baghouse repairs are on-going.

Alcoa has not had occasion to procure the quantitative data because the dross cooling room has not been permit restricted.

On August 14, 2002, Samuel Bruntz from Alcoa, submitted the following additional information regarding Condition D.1.11:

Alcoa wishes to point out that 40 CFR 63, Subpart LL does not require that 100% of the A-446 pollution control system baghouses be in operation at all times when the green anode baking furnace operates. It does require that corrective actions specified in the SSM plan be initiated within 1 hour when stacks are observed to have visible emissions, and alumina feed or fan amps exceed approved compliance parametric limits. 40 CFR 63, Subpart LL also allows up to 6 exceedances per compliance monitoring parameter in a six-month period, without being in violation. This MACT regulation recognizes that the green anode baking ring furnaces cannot be totally shutdown without causing a source to incur untenable production penalties, and has reasonably provided sources the flexibility to operate with portions of a control system off-line for repair, without causing the process to shutdown.

With respect to the dross cooling baghouses, Alcoa also objects to the proposed condition, because of the implied requirement to suspend dross cooling operations if any of the 4 baghouses are down for maintenance. The inability to process dross for a prolonged period of time could result in the ingot plant being placed on hold, and thus not being able to process molten aluminum from the potlines. If the potlines cannot be tapped, they would ultimately operate in an upset condition with associated negative air quality impacts. Alcoa is committed to operation of its pollution control systems with as much uptime as possible, without incurring unacceptable production penalties. In addition, the analysis provided for the dross cooling baghouses in the response to the June 4, 2002 Notice of Deficiency No. 1 indicated that the PM<sub>10</sub> emissions estimates were based on test data procured on the dross cooling process with one of the smaller baghouses down for maintenance. As a minimum, the revised permit condition should at least allow operation of the dross cooling process if one of the smaller baghouses is down for maintenance. Alcoa recognizes that it does not have test data in hand for the CRP condition it has requested, i.e. operation of the dross cooling process if a large and small baghouse are both down for maintenance. The amendment described below will provide Alcoa with the opportunity to make the requested demonstration that its CRP for the dross cooling process will not cause an exceedance of the PM<sub>10</sub> emission limit of 0.454 lbs. PM<sub>10</sub>/ton of dross processed.

Consistent with the above discussions, Alcoa requests that proposed conditions D.1.13 and D.1.14 be amended as follows:

D.1.13 Green Anode Baking Furnace A-446 Pollution Control System Operating Requirements

In order to comply with Conditions D.1.3(b), D.1.5, D.1.2(a), D.1.3(c), and D.1.6, the A-446 pollution control system for the green anode baking ring furnace, which includes one baghouse for each of the three reactor sections, shall be operated in a manner that complies with approved 24-hour average compliance monitoring parametric limits for fan amps, and alumina feed rates, and initiates corrective actions for observed stack visible emissions within 1 hour of detection, as dictated by SSM requirements specified by 40 CFR 63, Subpart LL.

#### D.1.14 Dross Cooling Operations Baghouses Operation

Until such time as Alcoa can demonstrate that a large and small dross cooling baghouse can be taken off-line for maintenance and still allow compliance with Conditions D.1.3 (g) and D.1.5, both of the large baghouses, and one of the small baghouses for PM control shall be in operation at all times when the dross cooling process is in operation. Alcoa may operate the dross cooling process with a large and small baghouse off-line for maintenance following a successful demonstration that compliance can be attained upon implementation of the CRP without exceeding the limits specified by conditions D.1.3 (g) and D.1.5. The successful demonstration shall consist of performance tests that meet the requirements specified by Condition C.8, and include a description of the CRP operating conditions under which a large and small baghouse will be off-line in the test protocol required by Condition C.8.

#### Response 9:

Since Alcoa, Inc. - Warrick Operations provided quantitative evidence that the dross cooling operation can operate with only three (3) baghouses and comply with the emission limits in Conditions D.1.3(g) and D.1.4 (now Condition D.1.5) by calculating PM<sub>10</sub> emission rates using only three (3) baghouses in their June 4, 2002 NOD Response, Condition D.1.11 (now Condition D.1.13) will be changed to reflect the fact that three (3) baghouses can operate at one (1) time rather than all four (4) baghouses. The source would have to conduct a stack test in order to provide evidence that the potential to emit PM<sub>10</sub> after controls using two (2) baghouses would be at or below the proposed PM<sub>10</sub> emission rate listed in Condition D.1.3(g).

In order to ensure that the requirements of 326 IAC 2-2 do not apply to this modification, the baghouses must be in operation at all times, even though NESHAP Subpart LL does not require that the green anode baking ring furnace baghouses operate at all times. If at a future time, Alcoa decides to perform stack testing, which is always permissible, to demonstrate site-specific emission factors and/or control efficiencies, the source can submit a protocol to IDEM, OAQ and upon approval of the stack test results, request a modification to the appropriate permit.

Conditions D.1.11 (now Condition D.1.13) and D.1.12 (now Condition D.1.14) will be revised as follows since the baghouse does not control SO<sub>2</sub>, but the scrubber does:

#### D.1.13-14 Particulate Matter (PM)

- (a) In order to comply with Conditions D.1.3(b) and (g), D.1.4 and D.1.5, the baghouses for PM control shall be in operation at all times when the green anode baking ring furnace ~~and/or when the dross cooling process~~ is in operation.
- (b) In order to comply with Conditions D.1.3(g) and D.1.5, three (3) out of the four (4) baghouses controlling PM from the dross cooling shall be in operation at all times when the dross cooling process is in operation.

#### D.1.14-12 TF and SO<sub>2</sub>

In order to comply with Conditions D.1.2(a), ~~and~~ D.1.3(c), ~~and~~ D.1.6, the dry alumina scrubber for TF and SO<sub>2</sub> control shall be in operation at all times when the green anode baking ring furnace is

in operation.

The bag leak section system is discussed in Comment and Response 12.

**Comment 10:**

Elimination of Condition D.1.14 (b) - On September 27, 1999, Alcoa submitted a monitoring plan specifying the parameters that will be monitored for the ring furnace. On October 5, 1999, IDEM approved the monitoring plan. These parameters will continue to require monitoring after the re-built ring furnace commences operation. Since there is currently an approved monitoring plan in place, Alcoa questions the need for this permit condition, and requests that it be removed from the permit.

On August 14, 2002, Samuel Bruntz from Alcoa, submitted the following additional information regarding Condition D.1.14:

Alcoa objects to the portion of the condition that requires it to submit another compliance monitoring plan. The objectionable language is as follows:

"The Permittee shall submit for approval by IDEM, OAQ, a description of the parameters to be monitored, the operating limits, and the monitoring frequency to ensure that the baghouse and dry alumina scrubber is being properly operated and maintained. An explanation of the criteria used for selection of the parameters, the operating limits, and the monitoring frequency, including how these relate to emission control also shall be submitted to IDEM, OAQ."

On April 23, 1999, Alcoa submitted a compliance monitoring plan that met all of the above requirements. IDEM subsequently approved that plan. Alcoa is thus requesting clarification that the approved plan is adequate, and that submittal of another plan is not required, unless a new compliance monitoring parameter or monitoring interval is requested by Alcoa.

**Response 10:**

Condition D.1.14(b) (now Condition D.1.16(b)) required that the Permittee install, operate, calibrate and maintain a continuous parameter monitoring system (alumina and air flow). The source still needs to comply with this requirement by operating, calibrating and maintaining a continuous monitoring system regardless of whether continuous parametric monitoring system was previously installed or not. Furthermore, the continuous parametric monitoring system may need to be reinstalled into the rebuilt furnace even if the monitoring plan was already approved. However, IDEM did approve the compliance monitoring plan submitted on April 23, 1999. Therefore, Condition D.1.14(b) (now Condition D.1.16(b)) will be changed as follows:

<b>D.1.16 14</b>	Emissions Monitoring Requirements [326 IAC 20-24-1] [40 CFR Part 63.848, Subpart LL]
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(b)	Pursuant to 40 CFR 63.848(f), the Permittee shall install, operate, calibrate, and maintain a continuous parameter monitoring system for the baghouse and dry alumina scrubber. The Permittee shall install monitoring devices for the measurement of alumina flow and air flow for the dry alumina scrubber. <del>The Permittee shall submit for approval by IDEM, OAQ, a description of the parameters to be monitored, the operating limits, and the monitoring frequency to ensure that the baghouse and dry alumina scrubber is being properly operated and maintained. An explanation of the criteria used for selection of the parameters, the operating limits, and the monitoring frequency, including how these relate to emission control also shall be submitted to IDEM, OAQ.</del>
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**(c) Pursuant to 40 CFR 63.848(f), Alcoa, Inc. - Warrick Operations submitted their compliance monitoring plan on April 23, 1999.**

**Comment 11:**

Elimination of Condition D.1.15 - Condition D.1.14(d) requires that the corrective actions identified in the SSM plan be initiated within 1 hour. The SSM currently in place specifies that reactor sections will be isolated from the exhaust gases within 1 hour of the detection of visible emissions. Alcoa thus contends that Condition D.1.15 is unnecessary for the ring furnace pollution control system.

Alcoa recognizes that there are no MACT regulations that require the development and implementation of an SSM plan for the dross cooling baghouses. However, it has previously agreed that a CRP will be applicable. The CRP, as specified by Condition C.14, requires that corrective actions be described for implementation, in the event of a bag failure.

Based on the SSM and CRP requirements, Alcoa contends that Condition D.1.15 is overly prescriptive and redundant, and requests that it be removed from the permit.

**Response 11:**

The Start-up, Shutdown, and Malfunction Plan does not cover routine operation. In order to cover routine operation, Condition D.1.15 (now Condition D.1.18) is necessary. Therefore, Condition D.1.15 (now Condition D.1.18) has been revised and addresses what the Permittee shall do if the bag leak detection system is activated. The applicant requested to use a bag leak detection system, see Comment and Response 12.

**Comment 12:**

Revision of Condition D.1.16 and Condition D.1.20(e) - With respect to the ring furnace, EPA considered appropriate monitoring for POM (and other visible emissions) from baghouses when it developed 40 CFR 63, Subpart LL. It concluded, as pointed out in Condition D.1.14 (c.) and 40 CFR 63.848 (g), that a daily exhaust stack inspection was adequate for monitoring baghouse performance. Had EPA considered it necessary for exhaust stacks to be inspected more frequently than once per day, it certainly had the opportunity to require a more frequent interval before 40 CFR 63, Subpart LL was promulgated. In developing the daily exhaust stack inspection requirement, EPA received and considered input from regulated entities and other stakeholders before finalizing the daily inspection requirement. As a stakeholder, IDEM had the opportunity to present input to EPA on this requirement if they did not feel that performance of daily exhaust stack inspections was adequate. A review of the EPA summary of the comments received before regulation promulgation does not indicate that any objections were filed regarding the proposed inspection frequency.

IDEM appears to be disregarding EPA Guidance provided when they developed the various "White Papers" on Title V permitting and Compliance Assurance Monitoring. EPA repeatedly stated that any compliance assurance monitoring implemented as a part of a NESHAP should be considered sufficient for demonstrating compliance with the SIP limits for criteria pollutants controlled by the same control device required under the NESHAP. Based on the EPA "White Papers" guidance and the lack of justification from IDEM that the EPA specified exhaust stack daily inspection requirement is inadequate, Alcoa questions the value of the proposed permit condition as a more reliable compliance monitoring parameter.

Alcoa supports the performance of meaningful compliance parameter monitoring, and has agreed to install broken bag detectors on the seven (7) exhaust stacks of the ring furnace pollution control system (See Form CD-03, section 6 in the construction permit application). With respect to the four

(4) baghouses that control PM and PM<sub>10</sub> emissions from the dross cooling room, Alcoa herein commits to install broken bag detectors on the baghouse exhaust stacks, and requests that Condition D.1.16 be replaced in its entirety with the following condition:

D.1.16 Bag Leak Detection

The facility must install and operate a bag leak detection system. Upon installation of a triboelectric bag leak detection system, the Permittee must operate the detection system pursuant to U.S. EPA Guidance entitled Fabric Filter Bag Leak Detection Guidance (dated 1997 September). This document is available from the U.S. EPA, Office of Air Quality Planning and Standards, Monitoring and Analysis Division, Emissions Measurements Center (MD-18), Research Triangle Park, NC 27711. Other bag leak detection systems must be installed, operated, calibrated, and maintained in accordance with the manufacturers written specifications.

If the bag leak detection system is inoperable, the facility shall conduct visible emissions notations according to the following procedures, until the bag leak system is operable:

- (c) Daily visible emission notations of the baghouse exhaust stack shall be performed during normal daylight hours when exhausting to the atmosphere. A trained employee shall record whether emissions are normal or abnormal.
- (d) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, 80% of the time the process is in operation, not counting startup or shutdown time.

In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.

At startup of the process, an employee shall be considered trained if he has received instruction on the operation of the source and the control equipment. After one month of operation of the process, an employee shall be considered a trained employee if the employee has worked at the plant at least one month, and has been trained in the appearance and characteristics of normal visible emissions for that specific process.

In exchange for revision of this permit condition, as requested, Alcoa agrees to include response steps in its SSM and CRP, should an alarm event indicative of a failed bag occur. Alcoa also requests that Condition D.1.20 be amended as follows:

"To document compliance with Condition D.1.16, the Permittee shall maintain records of the bag leak detection system output, or, as appropriate, of the daily visible emission notations of the baghouse outlet stack exhaust."

On August 14, 2002, Samuel Bruntz from Alcoa, submitted the following additional information:

Following initial adjustment of the system, the Permittee shall not adjust the sensitivity or range, averaging period, alarm set points, or alarm delay time except as detailed in the Start-up, Shutdown and Malfunction Plan for the anode baking ring furnace, or the Compliance Response Plan for the dross cooling process baghouses. In no case.....

Alcoa notes that, in permit 173-11342-00007, IDEM specified that if the broken bag detection system is inoperable, "Daily visible emission notations of the baghouse stack exhaust shall be performed during normal daylight operations when exhausting to atmosphere." Alcoa questions why it is now necessary to perform visible emissions notations once per shift, when once per day has been deemed adequate in previous permits that addressed broken bag detection. In addition, Alcoa

questions the reason why IDEM requires per shift visible emissions notations, when EPA accepts daily visible emissions notations, as evidenced by condition D.1.16 © ) only requiring that daily visible emissions notations be conducted.

Alcoa thus requests that the per shift observation requirement be amended to daily, to be consistent with 40 CFR 63, Subpart LL, and previous permits that have specified that daily notations are sufficient.

Condition D.1.17 (j)(5) "The Compliance Response Plan for the dross cooling units and the SSM for the ring furnace shall include troubleshooting response steps for when an abnormal emission is observed. "

Condition D.1.18 prescribes actions that shall be taken if the broken bag detector signal is activated. The proposed condition probably meant to prescribe corrective actions that would be taken if the broken bag detector alarm is activated. None of the proposed response actions are routine operation, because the broken bag detector has alarmed one or more failed bags. For the ring furnace, the appropriate place for describing the activation of corrective actions is the Shutdown portion of the SSM, as it pertains to the section of the A-446 system that must be taken off-line for repair. For the dross cooling process, the appropriate place for describing the activation of corrective actions is the CRP. Alcoa thus requests that new proposed condition D.1.18 be amended as follows:

#### D.1.18 Bag Leak Detection System Alarm Activation

In the event that a bag leak detection system alarm is activated, the Permittee shall immediately take the following response steps:

- (a) For the ring furnace A-446 pollution control system, which is a multi-compartment units, corrective actions shall be initiated for the affected compartment in accordance with the SSM within 1-hour.
- (b) For the four (4) dross cooling baghouses, each of which are single compartment baghouses, and until such time as a successful demonstration has been submitted and approved for operation of the dross cooling process with a large and small baghouse down for maintenance, failed large baghouses and the associated process will be shut down immediately until the failed large baghouse bags have been repaired or replaced. A dross cooling process controlled by a small baghouse shall be shutdown if both small baghouses have failed bags. Once a successful demonstration has been submitted in support of a CRP for a large and small baghouse down for maintenance, corrective actions shall be initiated as described in the CRP. Until such time as a successful demonstration has been submitted, operations controlled by a large baghouse may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions). Operations controlled by a small baghouse may continue if both small baghouses are down for maintenance only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

#### Response 12:

IDEM, OAQ has agreed to revise the compliance monitoring conditions to allow for the installation and operation of a bag leak detection system in Condition D.1.16 (now Condition D.1.17). IDEM, OAQ to be consistent with the appeal and subsequent permit modification has changed the requirement for once per shift visible emissions to once per day.

If the bag leak detection system is inoperable, the Permittee shall conduct visible emissions notations as specified in Condition D.1.16 (now Condition D.1.17(j)) as follows:

**D.1.1746 Bag Leak Detection System** ~~Visible Emissions Notations~~

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**The Permittee shall install and operate a continuous bag leak detection system for each exhaust stack of the green anode baking ring furnace and the dross cooling room. The bag leak detection system shall meet the following requirements:**

- (a) Each triboelectric bag leak detection system shall be installed, calibrated, operated, and maintained according to the "Fabric Filter Bag Leak Detection Guidance," (September 1997).
- (b) The bag leak detection system shall be certified by the manufacturer to be capable of detecting PM emissions at concentrations of ten (10) milligrams per actual cubic meter (0.0044 grains per actual cubic foot) or less.
- (c) The bag leak detection system sensor shall provide output of relative or absolute PM loadings.
- (d) The bag leak detection system shall be equipped with a device to continuously record the output signal from the sensor.
- (e) The bag leak detection system shall be equipped with an alarm system that will sound automatically when an increase in relative PM emissions over a preset level is detected. The alarm shall be located where it is easily heard by plant operating personnel.
- (f) For negative pressure or induced air fabric filters, the bag leak detector shall be installed downstream of the fabric filter.
- (g) Where multiple detectors are required, the system's instrumentation and alarm may be shared among detectors.
- (h) The baseline output shall be established by adjusting the range and the averaging period of the device and establishing the alarm set points and the alarm delay time.
- (i) Following initial adjustment of the system, the Permittee shall not adjust the sensitivity or range, averaging period, alarm set points, or alarm delay time except as detailed in the Compliance Response Plan. In no case may the sensitivity be increased by more than one hundred (100%) percent or decreased more than fifty (50%) percent over a 365-day period unless such adjustment follows a complete fabric filter inspection which demonstrates that the fabric filter is in good operating condition.
- (j) In the event that a bag leak detection system should malfunction, fail or otherwise need repair, the Permittee shall perform visible emissions notations of the stack exhausts associated with that bag leak detection system as follows:
  - (1)(a) ~~Visible emission notations of the one (1) green anode baking ring furnace stack exhausts and the dross cooling operation shall be performed once per day shift during normal daylight operations when exhausting to the atmosphere. A trained employee shall record whether emissions are normal or abnormal.~~



- (2)-(b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.
- (3)-(e) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.
- (4)-(d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.
- (5)-(e) The Compliance Response Plan for **the green anode baking ring furnace and the dross cooling operation** ~~this unit~~ shall contain troubleshooting contingency and response steps for when an abnormal emission is observed.

In addition, Condition D.1.15 (now Condition D.1.18) has been revised to reflect the operation of the bag leak detection system and Condition D.1.18 (Baghouse Inspections) has been deleted as follows:

**D.1.18 45      Bag Leak Detection Alarm Activation** ~~Broken or Failed Bag Detection~~

~~In the event that bag failure has been observed:~~ **In the event that a bag leak detection system alarm is activated for any reason, the same corrective actions specified in the CRP for use during periods of startup, shutdown, and malfunction, shall be followed to correct the cause for the alarm, regardless of whether the alarm is caused by a malfunction as defined, the Permittee shall take the following response steps:**

- (a) **For the ring furnace A-446 pollution control system, which is a multi-compartment unit, corrective actions shall be initiated for the affected compartment in accordance with the CRP (SSM) plan within one (1) hour.**

~~For multi-compartment units, the affected compartments will be shut down immediately until the failed units have been repaired or replaced.~~ **In the event of baghouse failure,** operations may continue only if there are no visible emissions or if the event qualifies as an emergency and the Permittee satisfies the emergency provisions of this permit (Section B- Emergency Provisions). Within eight (8) business hours of the determination of failure, response steps according to the timetable described in the Compliance Response Plan shall be initiated. For any failure with corresponding response steps and timetable not described in the Compliance Response Plan, response steps shall be devised within eight (8) business hours of discovery of the failure and shall include a timetable for completion. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports, shall be considered a violation of this permit.

- (b) **For the four (4) dross cooling operation baghouses which are single compartment baghouses, when more than one (1) of the four (4) units fail,** failed units and the associated process will be shut down immediately until the failed units have been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

**D.1.18 Baghouse Inspections**

~~An inspection shall be performed each calendar quarter of all bags controlling the green anode baking ring furnace and the dross cooling operation when venting to the atmosphere. A baghouse inspection shall be performed within three (3) months of redirecting vents to the atmosphere and every three (3) months thereafter. Inspections are optional when venting to the indoors. All defective bags shall be replaced.~~

Furthermore, the record keeping requirements in Condition D.1.20(e) and Condition D.1.20(g) have been revised as follows:

#### D.1.20 Record Keeping Requirements

---

- (f) ~~(e)~~ To document compliance with Condition D.1. ~~17~~ 46, the Permittee shall maintain records of visible emission notations of the green anode baking ring furnace and dross cooling operation stack exhausts once per **day shift when the applicable bag leak detection system malfunctions, fails or otherwise needs repair.**
- (g) To document compliance with Condition D.1.18, the Permittee shall maintain records of ~~the results of the inspections required under Condition D.1.18 and the dates the vents are redirected~~ **the occurrences of all bag leak detection alarms and the response steps.**

#### Comment 13:

Elimination of Conditions D.1.18 and D.1.20 (h) - Condition D.1.18 would potentially require that all bags in the baghouse be physically removed and inspected on a quarterly basis. Removing bags for inspection then re-inserting them could damage them enough to result in less efficient operation of the baghouse than before the bags were inspected. Replacement of otherwise properly operating filter media necessitated by a quarterly inspection would be a needless creation of waste and process downtime. The bag leak detection system will accurately indicate when there is a need for filter media replacement in the ring furnace and dross cooling room baghouses. As required by the SSM and CRP, Alcoa will initiate the corrective actions required to identify and replace the failed bags in the time frames specified. Accordingly, Alcoa contends that these proposed permit conditions are overly prescriptive and redundant, and requests that they be removed from the permit.

On July 18, 2002, Alcoa submitted the following in order to further support Comment 13:

There are available inspection methods that allow an identification of failed bags without removing the bag for a physical inspection. However, the condition, as written does not provide the flexibility, because it specifies that all bags be inspected.

Alcoa continues to question the need for this condition. If a broken bag detector alarms, that will cause Alcoa to initiate the corrective actions required to identify the leaking bags and replace it (them). Alcoa, has seen some baghouses operate with no failed bags for 3 years or longer with no failed bags. Alcoa has seen other baghouses that operate for less than 1 year without failed bags for various reasons. Especially for the baghouses that operate for long periods of time with no failed bags, a quarterly inspection creates unnecessary process downtime.

Pulse clean baghouses provide a plenum at the top of the baghouses, but do not provide access to the center of the baghouse. The bags attach to the tube sheet at the top of the baghouse, so there is no need to go beneath the tube sheet. However, because the proposed conditions requires a bag inspection, it then becomes necessary to remove the bags from the baghouse so they can be inspected. The process of removing and reattaching the bags could damage them enough to cause them to subsequently operate in a failed condition.

**Response 13:**

See Response 12 which deleted Condition D.1.18 (Baghouse Inspections).

**Comment 14:**

Elimination of Condition D.1.19 (c) – Pursuant to 40 CFR 63.846 (c.), a source may elect to comply with Subpart LL by emission averaging. In order for this option to be available, there must be at least two (2) ring furnaces at the source. There is only one (1) anode baking ring furnace at Alcoa. It is thus requested that this condition be removed from the permit.

**Response 14:**

The source only has one (1) anode baking ring furnace and therefore averaging can not be used. Therefore, Condition D.1.19(c) has been deleted as follows:

**D.1.19 Anode Baking Furnace Record Keeping and Reporting Requirements [326 IAC 20-24-1]  
[40 CFR Part 63, Subpart LL]**

Pursuant to 40 CFR 63.850(e), the Permittee shall maintain files of all information (including all reports and notifications) required by Sec. 63.10(b) and by 40 CFR 63 Subpart LL.

In addition to the general records required by Sec. 63.10(b), the Permittee shall maintain records of the following information:

- (a) Daily production rate of green anode material placed in the anode bake furnace;
- (b) A copy of the startup, shutdown, and malfunction plan;
- ~~(c) The current implementation plan for emission averaging and any subsequent amendments;~~
- ~~(c)(d)~~ Records, such as a checklist or the equivalent, demonstrating that the daily visual inspection of the exhaust stacks for the baghouse and dry alumina scrubber has been performed as required in Sec. 63.848(g), including the results of each inspection;
- ~~(d)(e)~~ Records documenting the corrective actions taken when the limits for an operating parameter established under Sec. 63.847(h) were exceeded, when visible emissions indicating abnormal operation were observed from the baghouse and dry alumina scrubber stacks during a daily inspection required under Sec. 63.848(g).

**Comment 15:**

Revision of Condition D.1.21 – 40 CFR 63.850 (d) requires that a semi-annual report of excess emissions be filed, as specified by 40 CFR 63.10(e)(3)(v). That report must be certified by the responsible official. The reporting requirements described in condition D.1.21 must also be certified by the responsible official. Alcoa requests that, in order to reduce paperwork, the proposed Condition D.1.21 report information be filed with the semi-annual excess emissions reports, thus combining these reports into a single document that must be certified. IDEM has the authority to accept semi-annual reports, pursuant to 326 IAC 2-7-5 (3)(C) (i).

Alcoa thus proposes that the condition be amended as follows:

A semi-annual report of excess emissions meeting the requirements of 40 CFR 63.10(e)(3)(v) and a semi-annual summary of the information to document compliance with Conditions D.1.3(a) and (f), D.1.5(a) and D.1.6 shall be submitted to the addresses listed in Section C – General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the semi-annual period being reported. The semi-annual reports submitted by the Permittee does require the certification by the “responsible official” as defined by 326 IAC 2-7-1(34).”

Alcoa noticed that the following currently applicable reporting requirements for the ring furnace have not been carried over into the proposed permit. Alcoa does not object to the apparent reduced reporting requirements, but wishes to confirm that these revisions were intended. The apparently removed reporting requirements are as follows:

Maximum calculated daily average lbs SO<sub>2</sub> / hr from the A446 stacks  
Maximum calculated tons SO<sub>2</sub> / day from the A446 stacks  
Lowest and highest daily average alumina feed rates in lbs/hr/reactor  
Maximum daily average baked carbon production in tons/hr. and associated alumina feed rate for that day  
Monthly average %S of pitch used in anodes monthly and rolling 12 month natural gas usage

#### Response 15:

IDEM, OAQ requires quarterly reporting of all throughput limits to show compliance with Conditions D.1.3(a) and (f) as well as quarterly reporting of the BACT emission limits contained in Condition D.1.5(a) (now Condition D.1.6(a)) as well as the Warrick County limits incorporated in Condition D.1.6 (now Condition D.1.7). Therefore, Condition D.1.21 (now Condition D.1.22) has not been revised to semiannual reporting. In addition, a new Condition D.1.22(b) will be added to the modification to require reporting of excess emissions pursuant to 40 CFR Part 63.10(e)(3).

Conditions 11, 12 and 15 of 87-08-91-0111, issued November 4, 1989 will be carried over into this source modification. Conditions 11, 12 and 15 of 87-08-91-0111 required compliance determination, recordkeeping, and reporting for SO<sub>2</sub> emission rates and of the dry alumina scrubber operation in order to demonstrate compliance with the Conditions 8 and 9 of 87-08-91-0111 which were incorporated as Conditions D.1.5 (now Condition D.1.6) and D.1.6 (now Condition D.1.7).

In light of the above, paragraphs (c) and (d) have been added to Condition D.1.13 (now Condition D.1.15). In addition, Condition D.1.20(c) as well as Condition D.1.21 have been changed.

The report form for the SO<sub>2</sub> emissions from the green anode baking ring furnace dry scrubber has been revised. In addition, forms have been added for the quarterly reporting to show compliance with Condition D.1.5 (now Condition D.1.6) and Condition D.1.6 (now Condition D.1.7) as well as Condition D.1.13 (now Condition D.1.15).

Therefore, Conditions D.1.13 (now Condition D.1.15), D.1.20, and D.1.21, as well as the revised and added report forms are as follows:

#### **D.1.15 43 Sulfur Dioxide [326 IAC 2-2-3] [326 IAC 7-4-10(a)(4)]**

In order to comply with Conditions ~~D.1.5~~ and D.1.6 and **D.1.7**, the Permittee shall utilize the following methods and/or calculations:

- (c) Pursuant to Condition 11 of 87-08-91-0111, issued November 4, 1989, during a period when compliance data is not available, compliance shall be determined from the tested SO<sub>2</sub> evolution (A446 inlet) emission factor of 3.69 pounds of SO<sub>2</sub> per ton of**

**baked carbon and the estimated A446 dry alumina scrubber SO<sub>2</sub> removal efficiency based on the A446 feed rate.**

- (1) Daily records shall be used to calculate the average tons per hour baked carbon production rate and the average pounds per hour per reactor alumina feed rate for each day.**
  - (2) The daily average pounds per reactor alumina feed rate shall be used to determine the daily average percent SO<sub>2</sub> removal.**
  - (3) The daily percent removal shall be used, with the SO<sub>2</sub> evolution emission factor and the average production rate, to calculate the pounds per hour and pounds per ton of baked carbon daily average SO<sub>2</sub> emission rates.**
- (d) Pursuant to Condition 12 of 87-08-91-0111, issued November 4, 1989, compliance shall be determined based on the daily SO<sub>2</sub> emission rates.**
- (1) The daily SO<sub>2</sub> emission rates shall be calculated by multiplying the daily average pounds of SO<sub>2</sub> per ton of baked carbon (as determined by Condition D.1.15(c)) times the daily baked carbon production to calculate the pounds per day SO<sub>2</sub> emission rates.**
  - (2) The daily SO<sub>2</sub> emission rates shall then be summed to calculate the tons per month and the tons per twelve (12) consecutive month period SO<sub>2</sub> emission rates.**

#### D.1.20 Record Keeping Requirements

- (c) To document compliance with Conditions ~~D.1.6 5(b)~~ and D.1.15:**
- (1) Records of the A446 outlet SO<sub>2</sub> emission rates and of the dry alumina scrubber operations shall be maintained for the most recent twenty-four (24) month period and made available to the OAQ upon request.**  
  
**Records of the dry alumina scrubber operations shall include the following:**
    - (A) An estimate of the daily average alumina feed rates in pounds per hour per reactor;**
    - (B) The time periods when either of the reactors is out of service; and**
    - (C) The time periods when either of the reactors is out of service and summary of all maintenance (routine, preventative or malfunction related) done on the A446 system.**
  - (2) Records of pitch sulfur content based on vendor analysis shall be maintained for the most recent twenty-four (24) month period and made available to the OAQ upon request.**
- (d) To document compliance with Condition ~~D.1.7-6~~, the Permittee shall maintain calendar month material balances using actual average sulfur content and material throughput.**

D.1.21 Reporting Requirements

- (a) A quarterly summary of the information to document compliance with Conditions D.1.3(a) and (f), ~~D.1.5(a)~~ and D.1.6 **through D.1.8 and D.1.15** shall be submitted to the addresses listed in Section C - General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported. The report submitted by the Permittee does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).
- (b) **Pursuant to 40 CFR Part 63.10(e)(3), the Permittee shall submit a report, or summary report, if measured emissions are in excess of the applicable standard. The report shall contain the information specified in 40 CFR Part 63.10(e)(3)(v) and be submitted semiannually unless quarterly reports are required as a result of excess emissions. The report shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the semi-annually or if necessary after the end of the quarter being reported. The report submitted by the Permittee does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).**

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF AIR QUALITY  
COMPLIANCE DATA SECTION

Part 70 Source Modification Quarterly Report

Facility: Green anode baking ring furnace **dry scrubber**  
Parameter: Sulfur Dioxide Emissions  
Limit: **35 tons per month and** 412 tons per twelve (12) consecutive month period. Monthly sulfur dioxide emissions shall be determined from calendar month material balances using actual average sulfur content and material throughput.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF AIR QUALITY  
COMPLIANCE DATA SECTION**

**Part 70 Source Modification Quarterly Report**

**Source Name:** Alcoa, Inc. - Warrick Operations  
**Source Address:** Jct. IN Hwys. 66 & 61, Newburgh, Indiana 47629  
**Mailing Address:** Bldg. 860E, P.O. Box 10, Newburgh, Indiana 47629-0010  
**Source Modification No.:** SSM 173-15661-00007  
**Facility:** Green anode baking ring furnace dry scrubber  
**Parameter:** Maximum monthly calculated pounds of SO<sub>2</sub> per ton of baked carbon and the monthly average percentage sulfur of pitch used in anodes  
**Limit:** 3.69 pounds of SO<sub>2</sub> per ton of baked carbon and 0.80% Sulfur

**YEAR:** \_\_\_\_\_

Month	Maximum calculated pounds of SO <sub>2</sub> per ton of baked Carbon	Average % S of pitch used in anodes

9 No deviation occurred in this month.

9 Deviation/s occurred in this month.

Deviation has been reported on: \_\_\_\_\_

Submitted by: \_\_\_\_\_

Title/Position: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Phone: \_\_\_\_\_

Attach a signed certification to complete this report.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF AIR QUALITY  
COMPLIANCE DATA SECTION**

**Part 70 Source Modification Quarterly Report**

Source Name: Alcoa, Inc. - Warrick Operations  
Source Address: Jct. IN Hwys. 66 & 61, Newburgh, Indiana 47629  
Mailing Address: Bldg. 860E, P.O. Box 10, Newburgh, Indiana 47629-0010  
Source Modification No.: SSM 173-15661-00007  
Facility: Green anode baking ring furnace dry scrubber  
Parameter: Maximum calculated daily average pounds of SO<sub>2</sub> per hour, lowest and highest daily average alumina feed rate and the maximum average baked carbon production and associated aluminum feed rate.

Year: \_\_\_\_\_

Parameter	First month of the quarter	Second month of the quarter	Third month of the quarter
Maximum calculated daily average lbs SO <sub>2</sub> per hour (lbs/hr)			
Lowest daily average alumina feed rate (lbs/hr/reactor)			
Highest daily average alumina feed rate (lbs/hr/reactor)			
Maximum daily average baked carbon production rate (tons/hr)			
Daily average alumina feed rate on the day when the maximum daily average carbon production rate was attained (lbs/hr/reactor)			

9 No deviation occurred in this month.

9 Deviation/s occurred in this month.

Deviation has been reported on: \_\_\_\_\_

Submitted by: \_\_\_\_\_

Title/Position: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Phone: \_\_\_\_\_

Attach a signed certification to complete this report.



**Comment 16:**

On August 14, 2002, Samuel Bruntz from Alcoa, submitted the following comment:

Alcoa is subject to the Section 112(j) MACT hammer requirements. However, it has complied with the application provisions by virtue of submittal of the required notifications to IDEM on May 14, 2002. It does not need to be reminded of these requirements, by inclusion of this permit condition in a source modification which is not subject to the Section 112(j) MACT hammer requirements. The ring furnace is not subject to the Section 112(j) MACT hammer requirements, because it is subject to the MACT standards specified under 40 CFR 63, Subpart LL, which became applicable in October, 2000.

**Response 16:**

There are facilities located within the Green Anode Production Mill that are subject to Section 112(j) MACT hammer requirements. Therefore, the Section 112(j) MACT hammer requirements apply to this source. Therefore, Condition C.19 is being added to the proposed permit to specify the Section 112(j) hammer requirements that have not been documented in any previous permit issued to this source. Furthermore, even though the source did submit their required notification on May 14, 2002, adding Condition C.19 does not impose any new limitations on this source and is a reminder to the source of the requirements. Therefore, Condition C.19 has been added to this proposed modification as follows:

**C.19 Application Requirements for Section 112(j) of the Clean Air Act [40 CFR 63.52(e) and 326 IAC 2-7-12]**

- 
- (a) The Permittee shall submit a Part 2 Maximum Achievable Control Technology (MACT) Application in accordance with 40 CFR 63.52(e)(1). The Part 2 MACT Application shall meet the requirements of 40 CFR 63.53(b).
- (b) Notwithstanding paragraph (a), the Permittee is not required to submit a Part 2 MACT Application if the Permittee no longer meets the applicability criteria of 40 CFR 63.50 by the application deadline in 40 CFR 63.52(e)(1). For example, the Permittee would not have to submit a Part 2 MACT Application if, by the application deadline:
- (1) The source is no longer a major source of hazardous air pollutants, as defined in 40 CFR 63.2;
  - (2) The source no longer includes one or more units in an affected source category for which the U.S. EPA failed to promulgate an emission standard by May 15, 2002; or
  - (3) The MACT standard or standards for the affected source categories included at the source are promulgated.
- (c) Notwithstanding paragraph (a), the Permittee shall comply with an applicable promulgated MACT standard, including the initial notification requirements of the MACT standard, in accordance with the schedule provided in the MACT standard, if the MACT standard is promulgated prior to the Part 2 MACT Application deadline. If a MACT has been promulgated and the source is subject to the MACT, the Permittee shall submit an application for a significant permit modification under 326 IAC 2-7-12 no later than nine (9) months prior to the compliance date for the MACT. The application should include information regarding which portions of the MACT are applicable to the emission units at the source and which compliance options will be followed.

**If a permit renewal application is due before the date that a significant permit modification application would be due, the Permittee shall include the required information in the renewal application in lieu of submitting an application for a significant permit modification.**

Upon further review, the OAQ has decided to make the following changes to the Significant Source Modification to a Part 70 Operating Permit: The permit language is changed to read as follows (deleted language appears as ~~strikeouts~~, new language is **bolded**):

**Change 1:**

Pursuant to Condition 19 of 87-08-91-0111, issued November 4, 1989, the production from the ring furnace shall be limited to 28 tons of baked carbon per hour and 671 tons of baked carbon per day. The rebuilt furnace is limited by green anode input specified in Condition D.1.3(a). Therefore, the limitations in Condition 19 of 87-08-91-0111, issued November 4, 1989 have been replaced by Condition D.1.3(a).

In addition, due to the source's decision to comply with NESHAP Subpart LL rather than the requirements of NSPS Subpart S specified in Conditions 4 - 7 and 21 of 87-08-91-0111, issued November 4, 1989, these conditions which have been abstracted from the permit are replaced by the requirements of NESHAP Subpart LL specified in Conditions D.1.2, D.1.8 (now Condition D.1.10), D.1.9 (now Condition D.1.11), D.1.14 (now Condition D.1.16), and D.1.19.

Conditions 4 - 7, 19 and 21 of 87-08-91-0111, issued November 4, 1989 are as follows:

- Condition 4: That the ring furnace is subject to and must meet the requirements of 326 IAC 12 - New Source Performance Standards (by reference Subpart S - Standards of Performance for Primary Aluminum Reduction Plants, 40 CFR 60.190-195).
- Condition 5: That pursuant to 40 CFR 60.192(a)(3), controlled emissions of fluorides from the ring furnace shall be limited to 0.1 pound per ton of aluminum equivalent.
- Condition 6: That pursuant to 40 CFR 60.195(a) and (b), as approved by the Air Pollution Control Board on May 1, 1985, fluorides performance tests shall be conducted every six months to document compliance with Condition No. 4. Stack testing shall be conducted pursuant to 326 IAC 3-2 and 40 CFR 60.195. Any alternate testing frequency established pursuant to 40 CFR 60.195(b) shall supersede the six month frequency specified above.
- Condition 7: That pursuant to 40 CFR 60.194, devices to determine the weight of aluminum and anode produced daily shall be calibrated, maintained and operated. Records of daily production rates of aluminum and anodes, as well as green anode feed rates, shall be maintained for the most recent 24 month period and made available to the OAM upon request.
- Condition 19: That production from the ring furnace shall be limited to 28 tons baked carbon per hour and 671 tons baked carbon per day. Records of daily and monthly ring furnace baked carbon production shall be maintained for the most recent 24 month period and made available to the OAM upon request. A quarterly report showing maximum daily and monthly total ring furnace baked carbon production shall be submitted to the OAM by the end of the month following the end of each quarter.
- Condition 21: That pursuant to 40 CFR 60.193(a)(2), visible emissions from ring furnace exhaust points (A446 dry alumina scrubber stacks plus any other vents or stacks from which

ring furnace emissions are exhausted to the atmosphere) shall be limited to less than twenty (20%) percent opacity as determined by US EPA Method 9.

Thus, Condition D.1.4(a) and (b) have been added to rescind Conditions 4 - 7, 19 and 21 of 87-08-91-0111, issued November 4, 1989 as follows:

#### **D.1.4 Nonapplicability**

- (a) **The requirement from 87-08-91-0111, issued November 4, 1989, Condition 19, Baked Carbon Production, has not been included in the Significant Source Modification. The production limit in Condition 19 from 87-08-91-0111 has been changed to the green anode input limitation in Condition D.1.3(a). Thus, Condition 19 of 87-08-91-0111 is hereby rescinded.**
- (b) **The requirements from 87-08-91-0111, issued November 4, 1989, Conditions 4 through 7, and 21, to comply with 40 CFR 60 Subpart S, have not been included in the Significant Source Modification. Pursuant, to 40 CFR 60.190(c), Alcoa, Inc. - Warrick Operation has elected to comply with the requirements of 40 CFR 63 Subpart LL. Thus, Conditions 4 through 7, and 21 are hereby rescinded.**

#### **Change 2:**

Due to the rule change effective June 12, 2002, the rule cite in Condition D.1.4, (now Condition D.1.5) has been revised as follows:

#### **D.1.5 4 Particulate Matter (PM) [326 IAC 6-3-2]**

Pursuant to 326 IAC 6-3-2 (~~Process Operations~~ **Particulate emission limitations, work practices, and control technologies**), the allowable PM emission rate for the one (1) green anode baking ring furnace, shall not exceed 33.7 pounds per hour, total when operating at a process weight rate of 17.2 tons per hour and the allowable PM emission rate for the dross cooling operation, shall not exceed 38.4 pounds per hour total when operating at a process weight rate of 28.2 tons per hour.

#### **Change 3:**

Pursuant to Condition 17 of 87-08-91-0111, issued November 4, 1989, the natural gas throughput limits of 75 million cubic feet per month and 600 million cubic feet per twelve (12) consecutive month period to the green anode baking ring furnace still applies. Therefore, these throughput limits will be added as a new Condition D.1.8 with record keeping added as Condition D.1.20(e), reporting added as Condition D.1.21(a) and a new quarterly report form as follows:

#### **D.1.8 Natural Gas Usage Limitation**

**Pursuant to Condition 17 of 87-08-91-0111, issued November 4, 1989, natural gas throughput to the green anode baking ring furnace shall be limited to 75 million cubic feet per month and 600 million cubic feet per twelve (12) consecutive month period.**

#### **D.1.20 Record Keeping Requirements**

- (e) **To document compliance with Condition D.1.8, records of the monthly ring furnace natural gas throughput shall be maintained for the most recent twenty-four (24) month period and made available to the OAQ upon request.**

#### **D.1.21 Reporting Requirements**

- (a) **A quarterly summary of the information to document compliance with Conditions D.1.3(a) and (f), ~~D.1.5(a)~~ and D.1.6 through D.1.8 and D.1.15 shall be submitted to the addresses listed in Section C - General Reporting Requirements, of this permit, using the reporting**

forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported. The report submitted by the Permittee does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF AIR QUALITY  
COMPLIANCE DATA SECTION**

**Part 70 Source Modification Quarterly Report**

**Source Name:** Alcoa, Inc. - Warrick Operations  
**Source Address:** Jct. IN Hwys. 66 & 61, Newburgh, Indiana 47629  
**Mailing Address:** Bldg. 860E, P.O. Box 10, Newburgh, Indiana 47629-0010  
**Source Modification No.:** SSM 173-15661-00007  
**Facility:** Green anode baking ring furnace  
**Parameter:** Natural gas throughput  
**Limit:** 75 million cubic feet per month and 600 million cubic feet per twelve (12) consecutive month period.

**YEAR:** \_\_\_\_\_

Month	Natural Gas Usage (million cubic feet)	Natural Gas Usage (million cubic feet)	Natural Gas Usage (million cubic feet)
	This Month	Previous 11 Months	12 Month Total

9 No deviation occurred in this month.

9 Deviation/s occurred in this month.  
Deviation has been reported on: \_\_\_\_\_

**Submitted by:**

**Title/Position:** \_\_\_\_\_

**Signature:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Phone:** \_\_\_\_\_

**Attach a signed certification to complete this report.**

### Summary of “D” Condition Numbers

The following table summarizes the “D” condition numbers in the public notice version of the Significant Source Modification to the proposed version due to the changes and additions specified in this Addendum.

#### Summary of “D” Condition Numbers

<b>Public Notice Condition Number</b>	<b>Post Public Notice Condition Number</b>
D.1.1	D.1.1
D.1.2	D.1.2
D.1.3	D.1.3
-	D.1.4
D.1.4	D.1.5
D.1.5	D.1.6
D.1.6	D.1.7
-	D.1.8
D.1.7	D.1.9
D.1.8	D.1.10
D.1.9	D.1.11
D.1.10	D.1.12
D.1.11	D.1.13
D.1.12	D.1.14
D.1.13	D.1.15
D.1.14	D.1.16
D.1.15	D.1.18
D.1.16	D.1.17
D.1.17	-
D.1.18	-
D.1.19	D.1.19
D.1.20	D.1.20
D.1.21	D.1.21

## Indiana Department of Environmental Management Office of Air Quality

### Technical Support Document (TSD) for a Part 70 Significant Source Modification

#### Source Background and Description

<b>Source Name:</b>	<b>Alcoa, Inc. - Warrick Operations</b>
<b>Source Location:</b>	<b>Jct. IN Hwys. 66 &amp; 61, Newburgh, Indiana 47629</b>
<b>County:</b>	<b>Warrick</b>
<b>SIC Code:</b>	<b>3334</b>
<b>Operation Permit No.:</b>	<b>T 173-6627-00007</b>
<b>Operation Permit Issuance Date:</b>	<b>Not Yet Issued</b>
<b>Significant Source Modification No.:</b>	<b>SSM 173-15661-00007</b>
<b>Permit Reviewer:</b>	<b>Michael S. Schaffer</b>

The Office of Air Quality (OAQ) has reviewed a modification application from Alcoa, Inc. - Warrick Operations relating to the rebuilding and operation of the following emission unit and pollution control devices:

- (a) One (1) above-ground, natural gas-fired, green anode baking ring furnace, known as Bldg. 295 Anode Baking Ring Furnace, equipped with a baghouse for particulate matter control and a dry alumina scrubber for TF and SO<sub>2</sub> control, exhausting through Stacks 265D.1, 265D.2, 265D.3, 265D.4, 265D.5, 265D.6, 265D.8, and 265J.1, capacity: 23.15 tons of green anodes per hour.

Alcoa, Inc. - Warrick Operations has also requested in their application that the Office of Air Quality (OAQ) limits the operation of the following emission unit and pollution control devices:

- (b) One (1) dross cooling operation, equipped with four (4) baghouses for PM<sub>10</sub> control, capacity: 28.2 tons per hour.

#### History

On March 5, 2002, Alcoa, Inc. - Warrick Operations submitted a modification application to the OAQ to rebuild the Anode Baking Ring Furnace. Alcoa, Inc. - Warrick Operations has proposed this modification to deepen the pits of the green anode baking ring furnace and decrease the maximum capacity from 245,000 tons of green anodes per year pursuant to 87-08-91-0111, issued November 4, 1989, to 202,794 tons of green anodes per year (23.15 tons of green anodes per hour). Alcoa, Inc. - Warrick Operations has agreed to limit production to no more than 202,280 tons of baked anodes per year. Increases in the proposed actual emissions from the facilities located in the Green Anode Production Mill due to rebuilding of the green anode baking ring furnace, will be counted towards PSD because there is increased utilization on those emission units, pursuant to 326 IAC 2-2.

On June 4, 2002, Alcoa, Inc. - Warrick Operations submitted additional information to the OAQ to limit the annual dross throughput to 38,000 tons per year compared to the maximum annual throughput of 247,032 tons per year based upon 28.2 tons per hour.

Prior to 1997, dross cooling was a fugitive operation. However, because the dross cooling operation was existing on December 13, 1995 pursuant to 326 IAC 6-5-1(b), and the emissions did not cross the property line, the dross cooling and loadout operations complied with this rule on an uncontrolled basis.

Sometime after June 5, 1997, the dross cooling operation was completely converted to an enclosed room, with cooling and dross loading operations controlled by four (4) baghouses. Since then, the dross cooling operation has been submitted as an existing emission unit with the Title V application. Therefore, the dross cooling operation shall be treated as an existing emission unit for this modification.

Currently, the four (4) baghouses are being replaced, such that a dross throughput limitation of 38,000 tons per year combined with a PM<sub>10</sub> emission factor of 0.455 pounds per ton is sufficient to limit PM<sub>10</sub> emissions from this modification to under the PSD significant levels pursuant to 326 IAC 2-2.

This existing source has submitted their Part 70 (T 173-6627-00007) application on September 19, 1996.

### **Special Issue - Increased Utilization of Existing Processes**

Alcoa, Inc. - Warrick Operations has proposed to rebuild the green anode baking ring furnace. Previously, Alcoa, Inc. - Warrick Operations were obtaining some of their baked anodes from offsite to operate the Green Anode Production Mill and proposed to rebuild the furnace in order to produce more of their own baked anodes. Since it has been determined that the construction and operation of the rebuilt green anode baking ring furnace will increase the productivity of the Green Anode Production Mill, IDEM has determined that the construction and operation of the green anode baking ring furnace would result in an increased utilization of the other Green Anode Production Mill facilities and/or processes, including fresh petroleum coke screening, the fresh petroleum coke hammermill, the fresh petroleum coke intermediate classifier, the ball mill classifier, coal pitch tar receiving, butts, pitch and fresh coke mixing, green anode forming (pitch fume treatment system), the anode butt blasting machine, the anode butts impactor, anode crushed butts storage, anode busbar cleaning and finished cast iron processing. The projected increases in emissions from these other existing Green Anode Production Mill facilities and/or processes have been included in the applicability analysis for this modification. In order to render the requirements of PSD not applicable, Alcoa, Inc. - Warrick Operations has chosen to limit production to 202,280 tons of baked anodes per year in combination with emission rate limits from the green anode baking ring furnace, limit the emission rates from these other existing Green Anode Production Mill facilities and/or processes, and limit the dross throughput of the dross cooling operation to 38,000 tons dross per year in combination with a PM<sub>10</sub> emission rate limit.

### **Existing Approvals**

The source applied for a Part 70 Operating Permit on September 19, 1996. The source has been operating under previous approvals including, but not limited to, the following:

- (a) Minor Source Modification 173-15352-00007, issued on April 23, 2002;
- (b) Minor Source Modification 173-14944-00007, issued on December 5, 2001;
- (c) Significant Source Modification 173-14145-00007, issued on July 7, 2001;
- (d) Minor Source Modification 173-12886-00007, issued on February 1, 2001;



- (e) Minor Permit Modification 173-12588-00007, issued on October 10, 2000;
- (f) Minor Source Modification 173-12676-00007, issued on October 2, 2000;
- (g) Minor Permit Modification 173-11419-00007, issued on June 9, 2000;
- (h) Significant Source Modification 173-11342-00007, issued on May 22, 2000;
- (i) Significant Source Modification 173-11598-00007, issued on February 3, 2000;
- (j) Administrative Amendment 173-11403-00007, issued on January 28, 2000;
- (k) CP 173-11414-00007, issued on December 15, 1999;
- (l) CP 10913-00007, issued on October 1, 1999;
- (m) Exemption 173-10598-00007, issued on September 20, 1999;
- (n) Minor Source Modification 173-10959-00007, issued on July 15, 1999;
- (o) Exemption 173-10142-00007, issued on October 28, 1998;
- (p) Registration 173-9960-00007, issued on August 6, 1998;
- (q) Registration 173-9574-00007, issued on August 6, 1998;
- (r) Exemption 173-9620-00007, issued on June 17, 1998;
- (s) Exemption 173-9644-00007, issued on May 5, 1998;
- (t) Administrative Amendment 173-8566-00007, issued on May 29, 1997;
- (u) Registration 173-8161-00007, issued on May 19, 1997;
- (v) Registration 173-8193-00007, issued on May 13, 1997;
- (w) Administrative Amendment 173-6196-00007, issued on September 27, 1996;
- (x) Registration 173-6325-00007, issued on August 28, 1996;
- (y) Administrative Amendment 173-5524-00007, issued on May 6, 1996;
- (z) Registration 173-5449-00007, issued on April 11, 1996;
- (aa) Administrative Amendment 173-4611-00007, issued on November 30, 1995; and
- (bb) CP173-4501-00007, issued on June 16, 1995.

#### **Enforcement Issue**

There are no enforcement actions pending.

### Stack Summary

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (EF)
265D.1, 265D.2, and 265D.3	Anode Baking Ring Furnace	95 each	2.19 each	38,500 total	175 each
265D.4, 265D.5, and 265D.6	Anode Baking Ring Furnace	95 each	2.19 each	36,150 total	175 each
265D.8	Anode Baking Ring Furnace	95	3.85	32,830	172
265J.1	Anode Baking Ring Furnace	105	3.83	35,000	400

### Recommendation

The staff recommends to the Commissioner that the Part 70 Significant Source Modification be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on March 5, 2002, additional information was received on March 25, 2002, as well as June 4 and 5, 2002.

### Emission Calculations

See page 1 through 3 of Appendix A of this document for detailed emissions calculations.

### Unrestricted Potential To Emit of Modification

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as “the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U.S. EPA.”

This table reflects the PTE before controls of the rated capacity of 23.15 tons of green anodes per hour, equivalent to 202,794 tons per year. Control equipment is not considered federally enforceable until it has been required in a federally enforceable permit.

Pollutant	Potential To Emit (tons/year)
PM	231.4
PM <sub>10</sub>	231.4
SO <sub>2</sub>	374.2

Pollutant	Potential To Emit (tons/year)
VOC	37.5
CO	361.4
NO <sub>x</sub>	39.5

HAPS	Potential To Emit (tons/year)
Lead	0.641
Acetophenone	0.004
Benzene	0.460
Dibenzofuran	0.002
Ethyl benzene	0.007
Formaldehyde	0.536
Naphthalene	0.911
Phenol	0.004
POM	18.3
Toluene	0.073
Xylene	0.028
TOTAL	20.9

#### Justification for Modification

- (a) A Part 70 Significant Source Modification is proposed because the potential to emit PM, PM<sub>10</sub>, CO, SO<sub>2</sub>, NO<sub>x</sub>, and VOC exceeds twenty five (25) tons per year and the potential to emit a single HAP (POM) is greater than ten (10) tons per year. This modification is being performed pursuant to 326 IAC 2-7-10.5(f)(4) and 326 IAC 2-7-10.5(f)(6).
- (b) Since the Part 70 Operating Permit for this source has not been issued yet, the approval of this Significant Source Modification will allow the source to construct and operate.

#### County Attainment Status

The source is located in Warrick County.

Pollutant	Status
PM <sub>10</sub>	attainment
SO <sub>2</sub>	attainment
NO <sub>2</sub>	attainment

Pollutant	Status
Ozone	attainment
CO	attainment
Lead	attainment

- (a) Volatile organic compounds (VOC) are precursors for the formation of ozone. Therefore, VOC emissions are considered when evaluating the rule applicability relating to the ozone standards. Warrick County has been designated as attainment or unclassifiable for ozone. Therefore, VOC emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.
- (b) Warrick County has been classified as attainment or unclassifiable for all remaining criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

#### Source Status

Existing Source PSD or Emission Offset Definition (emissions after controls, based upon 8760 hours of operation per year at rated capacity and/or as otherwise limited):

Pollutant	Emissions (tons/year)
PM	Greater than 250
PM <sub>10</sub>	Greater than 250
SO <sub>2</sub>	Greater than 250
VOC	Greater than 250
CO	Greater than 250
NO <sub>x</sub>	Greater than 250

This existing source is a major stationary source because an attainment regulated pollutant is emitted at a rate of one hundred (100) tons per year or more, and since this source is a primary aluminum reduction source, it is one of the 28 listed source categories.

These emissions are based upon Alcoa Inc., Warrick Operations Annual Source Emission Statement.

#### Potential to Emit of Modification After Issuance

The table below summarizes the potential to emit, reflecting all limits, of the significant emission unit after controls. The control equipment is considered federally enforceable only after issuance of this Part 70 source modification.

<b>Table 1 Pollutant</b>	<b>PM (tons/yr)</b>	<b>PM<sub>10</sub> (tons/yr)</b>	<b>SO<sub>2</sub> (tons/yr)</b>	<b>VOC (tons/yr)</b>	<b>CO (tons/yr)</b>	<b>NO<sub>x</sub> (tons/yr)</b>	<b>Pb (tons/yr)</b>	<b>TF (tons/yr)</b>	<b>HAPs (tons/yr)</b>
Proposed Modification	75.3	75.3	103.9	37.4	360.5	39.4	0.199	3.04	20.4
Average Past Actual Emissions*	60.4	60.4	64.0	27.7	261.4	29.2	0.135	0.140	--
Net Emissions from Increased Utilization**	-23.5	6.09	--	0.411	--	--	-0.0003	--	--
Net Emissions***	-8.56	21.0	39.9	10.1	99.9	10.2	0.064	2.90	--
PSD Significant Level	25	15	40	40	100	40	0.6	3	--

\* The average past actual emissions of the green anode baking ring furnace are calculated at the bottom of page 1 of 3 of Appendix A.

\*\* For the proposed change in actual emissions for each emission unit in the Green Anode Production Mill due to increased utilization of those units, see page 2 of 3 of Appendix A.

\*\*\* The PTE after controls, including netting, is **not** less than the PSD significant levels. Increased utilization due to the rebuilt furnace has been included in the net emissions for this modification. This source has proposed to limit the dross cooling operation PM<sub>10</sub> emissions in order to assure that the overall net emissions from this modification are less than PSD significant levels. The source has agreed to limit the throughput of the dross cooling operation to less than 38,000 tons per year to offset the increase of the proposed actual PM<sub>10</sub> emissions due to increased utilization.

The following table below summarizes the potential to emit, reflecting all limits, of the dross cooling operation after controls. The control equipment is considered federally enforceable only after issuance of this Part 70 source modification.

<b>Table 2 Pollutant</b>	<b>PM (tons/yr)</b>	<b>PM<sub>10</sub> (tons/yr)</b>	<b>SO<sub>2</sub> (tons/yr)</b>	<b>VOC (tons/yr)</b>	<b>CO (tons/yr)</b>	<b>NO<sub>x</sub> (tons/yr)</b>	<b>Pb (tons/yr)</b>	<b>TF (tons/yr)</b>	<b>HAPs (tons/yr)</b>
Dross Cooling Limited Emissions	--	8.63	--	--	--	--	--	--	--
Average Past Actual Emissions*	--	14.72	--	--	--	--	--	--	--
Net Emissions	--	-6.09	--	--	--	--	--	--	--

<b>Table 2 Pollutant</b>	<b>PM</b> (tons/yr)	<b>PM<sub>10</sub></b> (tons/yr)	<b>SO<sub>2</sub></b> (tons/yr)	<b>VOC</b> (tons/yr)	<b>CO</b> (tons/yr)	<b>NO<sub>x</sub></b> (tons/yr)	<b>Pb</b> (tons/yr)	<b>TF</b> (tons/yr)	<b>HAPs</b> (tons/yr)
PSD Significant Level	25	15	40	40	100	40	0.6	3	–

\* The average past actual emissions of the dross cooling operation are calculated at the bottom of page 3 of 3 of Appendix A.

<b>Table 3 Pollutant</b>	<b>PM</b> (tons/yr)	<b>PM<sub>10</sub></b> (tons/yr)	<b>SO<sub>2</sub></b> (tons/yr)	<b>VOC</b> (tons/yr)	<b>CO</b> (tons/yr)	<b>NO<sub>x</sub></b> (tons/yr)	<b>Pb</b> (tons/yr)	<b>TF</b> (tons/yr)	<b>HAPs</b> (tons/yr)
Net Emissions from the Rebuilt Furnace* (Table 1)	-8.56	21.0	39.9	10.1	99.9	10.2	0.064	2.90	--
Net Emissions from Dross Cleaning*** (Table 2)	--	-6.09	--	--	--	--	--	--	--
Net Emissions from SSM 173-15661**	-8.56	14.9	39.9	10.1	99.9	10.2	0.064	2.90	--
PSD Significant Level	25	15	40	40	100	40	0.6	3	--

\* The net emissions from the green anode baking ring furnace include the increased utilization of the facilities in the Green Anode Production Mill.

\*\* MSM 173-15352-00007 issued on April 23, 2002 has not been included in the PSD significant levels evaluation because Alcoa, Inc. - Warrick Operations did not want compliance monitoring for the Alcan compact degassing unit. Therefore, the net emissions decrease from MSM 173-1352-00007 (-2.63 tons per year for PM and PM<sub>10</sub>) shall not be credited towards the net emissions for evaluating PSD significant levels. Emission rate limitations shall be placed on facilities with increased utilization due the rebuilt degasser in the Green Anode Production Mill.

\*\*\* This source has agreed to limit the green anode input of the green anode baking ring furnace to 202,280 tons per year and the throughput of the dross cooling operation to 38,000 tons per year. These throughput limits in combination with the baghouse and dry alumina scrubber operating at all times for the green anode baking ring furnace and the four (4) baghouses operating at all times for the dross cooling operation, is equivalent to the proposed net emissions for this modification in the table above.

This modification to an existing major stationary source is not major because the emissions increase is limited to less than the PSD significant levels. Therefore, pursuant to 326 IAC 2-2, and 40 CFR 52.21, the PSD requirements do not apply.

## **Part 70 Permit Determination**

### **326 IAC 2-7 (Part 70 Permit Program)**

This existing source has submitted their Part 70 (T 173-6627-00007) application on September 19, 1996. The rebuilt green anode baking ring furnace, known as the Bldg. 295 Anode Baking Ring Furnace is being reviewed under this permit shall be incorporated into the submitted Part 70 application.

## **Federal Rule Applicability**

The one (1) green anode baking ring furnace is not subject to the requirements of the New Source Performance Standard (40 CFR Part 60.190, Subpart S), because pursuant to 40 CFR 60.190(c), the Permittee of an anode baking ring furnace in a primary aluminum reduction source may elect to comply with the requirements of this subpart or the requirements of Subpart LL of Part 63. Alcoa, Inc. - Warrick Operations pursuant to 40 CFR 60.190(c), has elected to comply with the requirements of 40 CFR 63 Subpart LL rather than the requirements of 40 CFR 60 Subpart S. Therefore, the requirements of 40 CFR 60 Subpart S will not apply to this furnace.

The one (1) green anode baking ring furnace is subject to the requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPs), 40 CFR 63 Subpart LL because this furnace is an existing anode baking ring furnace at a major primary aluminum reduction source and Alcoa, Inc. - Warrick Operations has elected to comply with the requirements of 40 CFR 63, Subpart LL rather than 40 CFR Part 60.190, Subpart S.

This anode bake furnace is not a reconstruction as defined by NESHAP guidelines because the cost of the reconstruction is less than 50% of a new anode baking ring furnace. Therefore, the green anode baking ring furnace shall be treated as an existing furnace. The following requirements will apply pursuant to 40 CFR 63 Subpart LL:

(a) Sec. 63.843 Emission Limits for Existing Sources.

Pursuant to 40 CFR 63.843(c), the Permittee shall not discharge or cause to be discharged into the atmosphere any emissions of total fluorides (TF) or polycyclic organic matter (POM) in excess of the following limits:

- (1) Emissions of TF shall not exceed 0.10 kilograms per megagram (0.20 pounds per ton) of green anode; and
- (2) Emissions of POM shall not exceed 0.09 kilograms per megagram (0.18 pounds per ton) of green anode.

(b) Sec. 63.846 Emission Averaging

This source does not have to comply with the limitations of 40 CFR 63.846 because Table 3 of Subpart LL applies to more than one anode baking ring furnace at a primary aluminum source and Alcoa, Inc. - Warrick Operations has only one (1) anode baking ring furnace at their source. Therefore, the requirements of 40 CFR 63.846 do not apply.

(c) Sec. 63.847 Compliance Provisions.

- (1) Pursuant to 40 CFR 63.847(c), following approval of the site-specific test plan, the Permittee shall conduct an initial performance test during the first month following the startup in accordance with the procedures in paragraph (d) of this section.
- (2) Pursuant to 40 CFR 63.847(d), the initial performance test and all subsequent performance tests shall be conducted in accordance with the requirements of the general provisions in Subpart A of this part, the approved test plan, and the procedures in this section.

For the anode bake furnace, the Permittee shall measure and record the emission rate of TF and POM exiting the exhaust stacks of the baghouse and dry alumina scrubber

- (3) The Permittee shall determine compliance with the applicable TF and POM emission limits using the following equations and procedures:

- (A) Compute the emission rate (Eb) of TF from the anode bake furnace the following equation,

$$Eb = \frac{(Cs \times Qsd)}{(Pb \times K)}$$

Eb = emission rate of TF, kg/Mg (lb/ton) of green anodes produced

Cs = concentration of TF, Mg/dscm (Mg/dscf)

Qsd = volumetric flow rate of effluent gas (dscf/hr)

Pb = quantity of green anode material placed in furnace, mg/hr (ton/hr); and

K = conversion factor, 10<sup>6</sup> Mg/kg (453,600)

- (B) Compute the emission rate of POM from the anode bake furnace using the equation above,

Where:

Eb = emission rate of POM, kg/Mg (lb/ton) of green anodes produced and

Cs = concentration of POM, Mg/dscm (Mg/dscf).

(d) Sec. 63.848 Emission Monitoring Requirements.

The following applies to the baghouse and dry alumina scrubber operating in the one (1) green anode baking ring furnace:

- (1) Pursuant to 40 CFR 63.848(c), using the procedures in Sec. 63.847 and in the approved test plan, the Permittee shall monitor TF and POM emissions from the anode bake furnace on an annual basis. The Permittee shall compute and record the annual average of TF and POM emissions from at least three (3) runs to determine compliance with the applicable emission limits. The Permittee must include all valid runs in the annual average.



- (2) Pursuant to 40 CFR 63.848(f), the Permittee shall install, operate, calibrate, and maintain a continuous parameter monitoring system for the measurement of alumina and air flows. The Permittee shall submit for approval by the IDEM, OAQ, a description of the parameters to be monitored, the operating limits, and the monitoring frequency to ensure that the baghouse and dry alumina scrubber is being properly operated and maintained. An explanation of the criteria used for selection of the parameters, the operating limits, and the monitoring frequency, including how these relate to emission control also shall be submitted to the IDEM, OAQ.
  - (3) Pursuant to 40 CFR 63.848(g), the Permittee shall visually inspect the exhaust stacks of the baghouse and dry alumina scrubber on a daily basis for evidence of any visible emissions indicating abnormal operation.
  - (4) Pursuant to 40 CFR 63.848(f), if a monitoring device for the baghouse and dry alumina scrubber measures an operating parameter outside the limits established pursuant to Sec. 63.847(h), if visible emissions indicating abnormal operation are observed from the exhaust stacks of the baghouse and dry alumina scrubber during a daily inspection, the Permittee shall initiate the corrective action procedures identified in the startup, shutdown, and malfunction plan within one (1) hour. Failure to initiate the corrective action procedures within one (1) hour or to take the necessary corrective actions to remedy the problem is a violation.
  - (5) Pursuant to 40 CFR 63.848(j), the Permittee of an existing anode bake furnace shall install, operate, and maintain a monitoring device to determine the daily weight of aluminum produced and the weight of green anode material placed in the anode bake furnace. The weight of green anode material may be determined by monitoring the weight of all anodes or by monitoring the number of anodes placed in the furnace and determining an average weight from measurements of a representative sample of anodes.
  - (6) Pursuant to 40 CFR 63.848(k), the Permittee shall submit recommended accuracy requirements to the IDEM, OAQ, for review and approval. All monitoring devices required by this section must be certified by the Permittee to meet the accuracy requirements and must be calibrated in accordance with the manufacturer's instructions.
  - (7) Pursuant to 40 CFR 63.848(l), the Permittee may monitor alternative baghouse and dry alumina scrubber operating parameters subject to prior written approval by IDEM, OAQ.
- (e) Sec. 63.849 Test Methods and Procedures.
- Pursuant to 40 CFR 63.849(a), the Permittee shall use the following reference methods to determine compliance with the applicable emission limits for TF and POM emissions:
- (1) Method 13A or Method 13B in appendix A to Part 60 of this chapter, or an approved alternative, for the concentration of TF where stack or duct emissions are sampled;
  - (2) Method 13A or Method 13B and Method 14 or Method 14A in Appendix A to Part 60 of this chapter or an approved alternative method for the concentration of TF where emissions are sampled from roof monitors not employing wet roof scrubbers;

- (3) Method 315 in Appendix A to this part and Method 14 in Appendix A to Part 60 of this chapter or an approved alternative method for the concentration of POM where emissions are sampled from roof monitors not employing wet roof scrubbers.
- (f) Sec. 63.850 Notification, Reporting, and Record Keeping Requirements

Pursuant to 40 CFR 63.850(e), the Permittee shall maintain files of all information (including all reports and notifications) required by Sec. 63.10(b) and by this subpart.

In addition to the general records required by Sec. 63.10(b), the Permittee shall maintain records of the following information:

  - (1) Daily production rate of green anode material placed in the anode bake furnace;
  - (2) A copy of the startup, shutdown, and malfunction plan;
  - (3) The current implementation plan for emission averaging and any subsequent amendments;
  - (4) Records, such as a checklist or the equivalent, demonstrating that the daily visual inspection of the exhaust stacks for the baghouse and dry alumina scrubber has been performed as required in Sec. 63.848(g), including the results of each inspection;
  - (5) Records documenting the corrective actions taken when the limits for an operating parameter established under Sec. 63.847(h) were exceeded, when visible emissions indicating abnormal operation were observed from the baghouse and dry alumina scrubber stacks during a daily inspection required under Sec. 63.848(g).

#### **State Rule Applicability - Entire Source**

##### **326 IAC 2-2 (Prevention of Significant Deterioration (PSD))**

- (a) This source is one of the 28 major source categories and therefore, fugitive emissions are counted toward the determination of PSD applicability.
- (b) In order to make the requirements of 326 IAC 2-2 not applicable to the proposed source modification, the following limits for the green anode baking ring furnace are included:
  - (1) The input of green anodes to the green anode baking ring furnace shall be limited to 202,280 tons per twelve (12) consecutive month period.
  - (2) The emission rate of PM and PM<sub>10</sub> shall not exceed 0.745 pounds per ton of green anode, each.
  - (3) The emission rate of SO<sub>2</sub> shall not exceed 1.03 pounds of SO<sub>2</sub> per ton of green anode, and
  - (4) The emission rate of CO shall not exceed 3.57 pounds of CO per ton of green anode.
- (c) In order to make the requirements of 326 IAC 2-2 not applicable to the proposed source modification, the following limits for the cross cooling operation are included:

- (1) The throughput of the dross cooling operation shall be limited to 38,000 tons per twelve (12) consecutive month period, and
  - (2) The emission rate of PM<sub>10</sub> shall not exceed 0.445 pounds per ton of throughput.
- (d) In order to make the requirements of 326 IAC 2-2 due to increased utilization not applicable to the proposed source modification, the following limits for each facility located within the Green Anode Production Mill are included:
- (1) For fresh petroleum coke screening, the emission rate of PM and PM<sub>10</sub> shall not exceed 0.400 pounds per ton, each.
  - (2) For the fresh petroleum coke hammermill, the emission rate of PM and PM<sub>10</sub> shall not exceed 0.360 pounds per ton, each.
  - (3) For fresh petroleum coke intermediate classifier, the emission rate of PM and PM<sub>10</sub> shall not exceed 0.710 pounds per ton, each.
  - (4) For the ball mill classifier, the emission rate of PM and PM<sub>10</sub> shall not exceed 0.580 pounds per ton, each.
  - (5) For coal tar pitch receiving, the emission rate of VOC shall not exceed 0.270 pounds per ton.
  - (6) For butts, pitch, and fresh coke mixing:
    - (A) The emission rate of PM<sub>10</sub> shall not exceed 0.004 pounds per ton.
    - (B) The emission rate of PM shall not exceed 0.023 pounds per ton.
  - (7) For green anode forming operation (pitch fume treatment system):
    - (A) The emission rate of PM<sub>10</sub> shall not exceed 0.027 pounds per ton.
    - (B) The emission rate of PM shall not exceed 0.060 pounds per ton.
    - (C) The emission rate of VOC shall not exceed 0.018 pounds per ton.
  - (8) For the anode butt blasting machine:
    - (A) The emission rate of PM<sub>10</sub> shall not exceed 0.010 pounds per ton.
    - (B) The emission rate of PM shall not exceed 0.012 pounds per ton.
  - (9) For the anode butts impactor:
    - (A) the emission rate of PM<sub>10</sub> shall not exceed 0.076 pounds per ton.
    - (B) The emission rate of PM shall not exceed 0.100 pounds per ton.
  - (10) For the anode crushed butts storage:
    - (A) The emission rate of PM<sub>10</sub> shall not exceed 0.003 pounds per ton.

- (B) The emission rate of PM shall not exceed 0.011 pounds per ton.
- (11) For the anode busbar cleaning:
  - (A) The emission rate of PM<sub>10</sub> shall not exceed 0.0009 pounds per bar cleaned.
  - (B) The emission rate of PM shall not exceed 0.018 pounds per bar cleaned.
- (12) For finished anode cast iron processing:
  - (A) The emission rate of PM<sub>10</sub> shall not exceed 0.330 pounds per ton of iron melted.
  - (B) The emission rate of PM shall not exceed 0.410 pounds per ton of iron melted.

These limits ensure that the net emissions from the proposed modification will be less than the PSD Significant Levels. Therefore, pursuant to 326 IAC 2-2, and 40 CFR 52.21, the PSD requirements do not apply.

#### 326 IAC 5-1 (Opacity)

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary alternative opacity limitations), opacity shall meet the following, unless otherwise stated in this permit:

- (a) Opacity shall not exceed an average of forty percent (40%) any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR Part 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

#### State Rule Applicability - Individual Facilities

##### 326 IAC 2-2-3 (Control Technology Review; Requirements)

Pursuant to 326 IAC 2-2-3 (BACT) and Conditions 9 and 10 of 87-08-91-0111, issued November 4, 1989:

- (a) Sulfur dioxide emissions from the A446 dry alumina scrubber shall be limited to 1.13 tons per day, and 35 tons per month, and 412 tons per rolling twelve (12) consecutive month period.
- (b) ALCOA shall use the lowest sulfur content coal tar pitch commercially available. This shall be limited to a maximum, of 0.80% sulfur. Records of pitch sulfur content based on vendor analysis shall be maintained for the most recent 24 month period and made available to the OAQ upon request.

Should pitch with a sulfur content of 0.80% become unavailable and the monthly average pitch sulfur content exceed this limit, then ALCOA shall have 30 days from the end of the

month in violation to provide to the OAQ documentation that lower sulfur pitch is not available and documentation for a new proposed pitch sulfur content BACT limit. The BACT limit in (a) above shall remain in effect until such time as the Commissioner approves a revised pitch sulfur content BACT limit. However, enforcement action will not be taken until such time as ALCOA has been given the opportunity to support, request and obtain approval for a revised BACT limit as described above. Testing to establish a new A446 inlet SO<sub>2</sub> emission rate, similar to that described below, will be required as part of any revised BACT limit approval.

If the monthly average sulfur content of the pitch used in the anodes exceeds 0.75% for any calendar month, then ALCOA shall report this to OAQ within 30 days. This notification shall include a discussion of the reason the pitch sulfur content has increased and whether ALCOA has been able, or will be able, to obtain pitch with sulfur content below 0.75%. If pitch with a sulfur content of less than 0.75% is not available, then ALCOA shall submit documentation of this and, within 90 days of the notification, conduct an A446 dry scrubber SO<sub>2</sub> inlet (ring furnace outlet) test to reestablish the SO<sub>2</sub> inlet emission rate previously established in Condition No. 8 of 87-08-91-0111, issued November 4, 1989. This test shall be conducted pursuant to 326 IAC 3-2 at the current maximum achievable anode production rate and the result will be used to determine compliance.

#### 326 IAC 2-4.1-1 (New Source Toxics Control)

This modification is not a reconstruction as defined by NESHAP and the green anode baking ring furnace does not produce a finish product. Therefore, the requirements of 326 IAC 2-4.1-1 do not apply to this modification.

#### 326 IAC 6-3-2 (Process Operations)

- (a) Pursuant to 326 IAC 6-3 (Process Operations), the allowable PM emission rate from the one (1) green anode baking ring furnace shall not exceed 33.7 pounds per hour when operating at a process weight rate of 23.15 tons of green anodes per hour. The allowable PM emission rate was calculated with the following equation:

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$$E = 4.10 P^{0.67} \quad \text{where } E = \text{rate of emission in pounds per hour and} \\ P = \text{process weight rate in tons per hour}$$

The PM emissions from the green anode baking ring furnace after controls are 17.2 pounds per hour which is less than the allowable PM emission rate of 33.7 pounds per hour. Therefore, green anode baking ring furnace is in compliance with this rule.

The baghouse shall be in operation at all times the green anode baking ring furnace is in operation, in order to comply with this limit.

- (b) Pursuant to 326 IAC 6-3 (Process Operations), the allowable PM emission rate from the one (1) dross cooling operations shall not exceed 38.4 pounds per hour when operating at a process weight rate of 28.2 tons per hour. The allowable PM emission rate was calculated with the following equation.

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$$E = 4.10 P^{0.67}$$

where E = rate of emission in pounds per hour and  
P = process weight rate in tons per hour

The four (4) baghouses shall be in operation at all times the dross cooling operation is in operation, in order to comply with this limit.

326 IAC 7-4-10 (Warrick County Sulfur Dioxide Emission Limitations), formerly 326 IAC 7-1-17

- (a) Pursuant to 326 IAC 7-4-10(a)(4)(H), the sulfur dioxide emissions from the green anode baking ring furnace shall not exceed 94.1 pounds per hour and 412 tons per twelve (12) consecutive month period.
- (b) Compliance with the pounds per hour limitations specified in 326 IAC 7-4-10(a)(4) shall be based on a stack test pursuant to 326 IAC 7-2-1(b).
- (c) Compliance with the tons per year limitations specified in 326 IAC 7-4-10(a)(4) shall be based on a rolling twelve (12) consecutive month emission total. Monthly sulfur dioxide emissions shall be determined from calendar month material balances using actual average sulfur content and material throughput. Quarterly reports shall be submitted to the department containing the calendar month and rolling twelve (12) month sulfur dioxide emissions from the smelter operations (anode bake ring furnace). The report shall include documentation of the data and methodology used to calculate the monthly sulfur dioxide emissions and shall be submitted by the end of the month following the end of the quarter.

### Testing Requirements

- (a) The following new testing requirements were incorporated into this modification due to rebuilding the anode baking ring furnace. Testing is being required to verify that the PM<sub>10</sub> and SO<sub>2</sub> emissions do not exceed PSD significant levels pursuant to 326 IAC 2-2 and 40 CFR 52.21.

Alcoa, Inc. - Warrick Operations shall test the following PM<sub>10</sub> emission rate in pounds per ton of the respective stacks of the rebuilt green anode baking ring furnace:

Rebuilt green anode baking ring furnace (Stacks 265D.1, 265D.2, 265D.3, 265D.4, 265D.5, 265D.6, 265D.8, and 265J.1, 0.745 pounds of PM<sub>10</sub> per ton of green anode and 1.03 pounds of SO<sub>2</sub> per ton of green anode)

- (b) The following new testing requirements were incorporated into this modification because there is increased utilization of the facilities located in the Green Anode Production Mill due to rebuilding the anode baking ring furnace. Testing is being required to verify that the PM<sub>10</sub> emissions do not exceed PSD significant levels pursuant to 326 IAC 2-2 and 40 CFR 52.21.

Alcoa, Inc. - Warrick Operations shall test the PM<sub>10</sub> emission rates in pounds per ton of the respective stacks of the following facilities located in the Green Anode Production Mill:

- (1) Fresh petroleum coke screening (Stack 119, 0.400 pounds per ton);
- (2) Fresh petroleum coke hammermill (Stack 128, 0.360 pounds of per ton);
- (3) Fresh petroleum coke intermediate classifier (Stack 129, 0.710 pounds per ton);
- (4) Ball mill classifier (Stack 130, 0.580 pounds per ton);

- (5) Butts, pitch, and fresh coke mixing (Stack 131, 0.004 pounds per ton);
  - (6) Green anode forming operations (pitch fume treatment system) (Stack 101, 0.027 pounds per ton);
  - (7) Anode butt blast machine (baghouse stacks, 0.010 pounds per ton)
  - (8) Anode butts impactor (Stack 104, 0.076 pounds per ton);
  - (9) Anode butts storage (Stack 106, 0.003 pounds per ton); and
  - (10) Finished anode cast ironing processing (Stack 107, 0.330 pounds per ton).
- (c) The following new testing requirement was incorporated into this modification because dross throughput limit of 38,000 tons per year in the dross cooling operation is being used to offset PM<sub>10</sub> emission increases from the increased utilization of facilities in the Green Anode Production Mill. Testing is being required to verify that the PM<sub>10</sub> emissions do not exceed PSD significant levels pursuant to 326 IAC 2-2 and 40 CFR 52.21.

Alcoa, Inc. - Warrick Operations shall test the following PM<sub>10</sub> emission rate in pounds per ton of the respective stacks of the dross cooling operation:

Dross cooling operation (four (4) baghouse stacks, 0.460 pounds per ton of dross)

### Compliance Requirements

Permits issued under 326 IAC 2-7 are required to ensure that sources can demonstrate compliance with applicable state and federal rules on a more or less continuous basis. All state and federal rules contain compliance provisions, however, these provisions do not always fulfill the requirement for a more or less continuous demonstration. When this occurs IDEM, OAQ, in conjunction with the source, must develop specific conditions to satisfy 326 IAC 2-7-5. As a result, compliance requirements are divided into two sections: Compliance Determination Requirements and Compliance Monitoring Requirements.

Compliance Determination Requirements in Section D of the permit are those conditions that are found more or less directly within state and federal rules and the violation of which serves as grounds for enforcement action. If these conditions are not sufficient to demonstrate continuous compliance, they will be supplemented with Compliance Monitoring Requirements, also Section D of the permit. Unlike Compliance Determination Requirements, failure to meet Compliance Monitoring conditions would serve as a trigger for corrective actions and not grounds for enforcement action. However, a violation in relation to a compliance monitoring condition will arise through a source's failure to take the appropriate corrective actions within a specific time period.

The compliance monitoring requirements applicable to this source are as follows:

- (a) The one (1) green anode baking ring furnace baghouse and the four (4) baghouses of the dross cooling operation have applicable compliance monitoring conditions as specified below:
  - (1) Visible emissions notations of the green anode baking ring furnace and the dross cooling operation shall be performed once per shift during normal daylight operations. A trained employee will record whether emissions are normal or abnormal. For processes operated continuously "normal" means those conditions prevailing,

or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time. In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions. A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process. The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when an abnormal emission is observed.

- (2) The Permittee shall record the total static pressure drop across the baghouse controlling the green anode baking ring furnace and the four (4) baghouses controlling the dross cooling operation, once per shift when the green anode baking ring furnace and/or the dross cooling process is in operation. Unless operated under conditions for which the Preventive Maintenance Plan specifies otherwise, the pressure drop across the baghouses shall be maintained within the range of 3.0 to 6.0 inches of water or a range established during the latest stack test. The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when the pressure reading is outside of the above mentioned range for any one reading.
- (3) An inspection shall be performed each calendar quarter of all bags controlling the operations at this source when venting to the atmosphere. A baghouse inspection shall be performed within three (3) months of redirecting vents to the atmosphere and every three (3) months thereafter. Inspections are optional when venting to the indoors. All defective bags shall be replaced.
- (4) In the event that bag failure has been observed:
  - (A) For multi-compartment units, the affected compartments will be shut down immediately until the failed units have been repaired or replaced. Operations may continue only if there are no visible emissions or if the event qualifies as an emergency and the Permittee satisfies the emergency provisions of this permit (Section B- Emergency Provisions). Within eight (8) business hours of the determination of failure, response steps according to the timetable described in the Compliance Response Plan shall be initiated. For any failure with corresponding response steps and timetable not described in the Compliance Response Plan, response steps shall be devised within eight (8) business hours of discovery of the failure and shall include a timetable for completion.
  - (B) For single compartment baghouses, failed units and the associated process will be shut down immediately until the failed units have been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).
- (b) The one (1) green anode baking ring furnace dry alumina scrubber has applicable compliance monitoring conditions as specified below:
  - (1) Pursuant to 40 CFR 63.848(f), the Permittee shall install, operate, calibrate, and maintain a continuous parameter monitoring system for the baghouse and dry alumina scrubber. The Permittee shall submit for approval by IDEM, OAQ, a description of the parameters to be monitored, the operating limits, and the monitoring



frequency to ensure that the baghouse and dry alumina scrubber is being properly operated and maintained. An explanation of the criteria used for selection of the parameters, the operating limits, and the monitoring frequency, including how these relate to emission control also shall be submitted to IDEM, OAQ. The following monitoring devices shall be installed:

For dry alumina scrubbers, devices for the measurement of alumina flow and air flow.

- (2) Pursuant to 40 CFR 63.848(g), the Permittee shall visually inspect the exhaust stacks of the baghouse and dry alumina scrubber on a daily basis for evidence of any visible emissions indicating abnormal operation.
- (3) Pursuant to 40 CFR 63.848(f), if a monitoring device the baghouse and the dry alumina scrubber measures an operating parameter outside the limits established pursuant to Sec. 63.847(h), if visible emissions indicating abnormal operation are observed from the exhaust stacks of the baghouse and dry alumina scrubber during a daily inspection, the Permittee shall initiate the corrective action procedures identified in the start-up, shutdown, and malfunction plan within one (1) hour. Failure to initiate the corrective action procedures within one (1) hour or to take the necessary corrective actions to remedy the problem is a violation.
- (4) Pursuant to 40 CFR 63.848(j), the Permittee of an existing anode bake furnace shall install, operate, and maintain a monitoring device to determine the daily weight of aluminum produced and the weight of green anode material placed in the anode bake furnace. The weight of green anode material may be determined by monitoring the weight of all anodes or by monitoring the number of anodes placed in the furnace and determining an average weight from measurements of a representative sample of anodes.

These monitoring conditions are necessary because the baghouse and the scrubber for the green anode baking ring furnace and the four (4) baghouses of the dross cooling operation must operate properly to ensure compliance with 326 IAC 5-1 (Opacity) 326 IAC 6-3 (Process Operations), NESHAP Subpart LL and 326 IAC 2-7 (Part 70).

## Conclusion

The construction and operation of this green anode baking ring furnace shall be subject to the conditions of the attached proposed **Significant Source Modification No. 173-15661-00007**.

# Appendix A: Emission Calculations

Company Name: Alcoa, Inc. - Warrick Operations  
Plant Location: Jct. Ind. Hwys. 66 & 61, Newburgh, Indiana 47629-0010  
Significant Source Modification: 173-15661  
Plt ID: 173-00007  
Permit Reviewer: Michael S. Schaffer  
Date: March 5, 2002

## Green Anode Baking Ring Furnace Emissions

Pollutant	Limited No. of Green Anodes (tons/yr)	Emission Factor (lbs/ton)	Green Anode (tons/hr)	Potential Emissions (lbs/hr)	Potential Emissions (lbs/yr)	Potential Emissions Before Controls (tons/yr)	Control Efficiency	Potential Emissions After Controls (tons/yr)	Potential Emissions After Limits & Controls (tons/yr)
PM	202280	2.283	23.15	52.84	462891	231.4	67.40%	75.5	75.3
PM-10	202280	2.283	23.15	52.84	462891	231.4	67.40%	75.5	75.3
SO2	202280	3.690	23.15	85.4	748310	374.2	72.16%	104.2	103.9
NOx	202280	0.390	23.15	9.0	79090	39.5	0.00%	39.5	39.4
CO	202280	3.565	23.15	82.5	722872	361.4	0.00%	361.4	360.5
VOC	202280	0.370	23.15	8.6	75034	37.5	0.00%	37.5	37.4
TF	202280	0.580	23.15	13.433	117673	58.84	94.82%	3.05	3.04
<b>HAPs</b>									
Acetophenone	202280	0.00004	23.15	0.0008	7.26	0.004	0.00%	0.004	0.0036
Bezene	202280	0.005	23.15	0.105	921	0.460	0.00%	0.460	0.459
Dibenzofuran	202280	0.00002	23.15	0.0005	4.28	0.00214	0.00%	0.00214	0.00213
Ethylbenzene	202280	0.0001	23.15	0.002	14.7	0.0074	0.00%	0.0074	0.0073
Formaldehyde	202280	0.005	23.15	0.122	1073	0.536	0.00%	0.536	0.535
Napthalene	202280	0.009	23.15	0.208	1821	0.911	0.00%	0.911	0.908
Phenol	202280	0.00004	23.15	0.001	8.98	0.00449	0.00%	0.00449	0.00448
POM	202280	0.180	23.15	4.17	36503	18.3	0.00%	18.3	18.2
Toluene	202280	0.001	23.15	0.017	146	0.0728	0.00%	0.0728	0.0726
Xylene	202280	0.0003	23.15	0.007	57.0	0.0285	0.00%	0.0285	0.0284

Pollutant	Limited Ton Pitch Loss Per Hour	Unlimited Ton Pitch Loss Per Hour	Tons of Lead Per Ton of Pitch	Potential Emissions (lbs/hr)	Potential Emissions (lbs/yr)	Maximum Uncontrolled Emissions (tons/yr)	Control Efficiency	Maximum Controlled Emissions (tons/yr)	Potential Emissions After Limits & Controls (tons/yr)
Pb	1.20	1.26	0.00006	0.146	1283	0.641	67.40%	0.209	0.199

Total HAPs: 20.9 20.5 20.4

## Methodology

PM, PM-10 and Total Flouride emission factors are based on the equation: maximum allowable emission factors

SO2 emission factors are uncontrolled emission factors, a minimum control efficiency of 72.16% is the minimum control efficiency required to reduce the SO2 emission factor to achieve the emission rate 1.03lbs/ton

NOx, CO, VOC, emission factors are based on 2000 stack tests

emission factor x desired grain loading input = maximum emission (lbs/hr)

Pb Emissions in (lbs/hr)= ton pitch loss per hour x tons of lead per tons pitch x 2000 lbs / ton (uncontrolled)

Pb Emissions in (lbs/hr) is representative of an uncontrolled emission factor 2.27 lbs/ton,

Pb control efficiency = (uncontrolled emission factor - controlled emission factor / uncontrolled emission factor) x 100

## Net Emission For The Rebuilt Green Anode Baking Ring Furnace

Pollutant	2000 Actual Emissions (tons/yr)	2001 Actual Emissions (tons/yr)	Average 2000 and 2001 Actual Emissions (tons/yr)	Rebuilt Furnace Net Emissions (tons/yr)
PM	13.8	107	60.4	14.9
PM10	13.8	107	60.4	14.9
SO2	73.0	55.0	64.0	39.9
NOx	31.7	26.7	29.2	10.2
CO	283	238	261	99.9
VOC	30.1	25.4	27.7	9.71
Pb	0.040	0.230	0.135	0.064
TF	0.120	0.160	0.140	2.90

**Appendix A: Evaluation of Increased Utilization  
Green Anode Production Mill Proposed Actual Emission Increases**

Page 2 of 3 TSD App A

**Company Name:** Alcoa, Inc. - Warrick Operations  
**Plant Location:** Jct. Ind. Hwys. 66 & 61, Newburgh, Indiana 47629-0010  
**Significant Source Modification:** 173-15661  
**Pit ID:** 173-00007  
**Permit Reviewer:** Michael S. Schaffer  
**Date:** March 5, 2002

**Evaluation of Increased Utilization at Facilities in the Green Anode Production Mill Due to the Rebuilt Green Anode Baking Ring Furnace**

<b>Pollutant</b>	Increased Fresh Petroleum Coke Screening Emissions (tons/yr)	Increased Fresh Petroleum Coke Hammermill Emissions (tons/yr)	Increased Fresh Petroleum Coke Intermediate Classifier Emissions (tons/yr)	Increased Ball Mill Classifier Emissions (tons/yr)	Increased Coal Tar Pitch Emissions (tons/yr)	Increased Butts, Pitch, and Fresh Coke Mixing Emissions (tons/yr)
PM	1.96	1.76	0.487	1.31	0.000	0.168
PM-10	1.96	1.76	0.487	1.31	0.000	0.029
SO2	0.00	0.00	0.000	0.00	0.000	0.000
NOx	0.00	0.00	0.000	0.00	0.000	0.000
CO	0.00	0.00	0.000	0.00	0.000	0.000
VOC	0.00	0.00	0.000	0.00	0.316	0.000
Pb	0.000001	0.000001	0.0000003	0.000001	0.000	0.000002
TF	0.00	0.00	0.000	0.00	0.000	0.000

<b>Pollutant</b>	Increased Green Anode Forming Operations Emissions (tons/yr)	Increased Anode Butt Blast Machine Emissions (tons/yr)	Increased Anode Butts Impactor Emissions (tons/yr)	Increased Anode Crushed Butts Storage Emissions (tons/yr)	Increased Anode Busbar Cleaning Emissions (tons/yr)	Increased Finished Anode Cast Iron Processing Emissions (tons/yr)	<b>Total Net Emissions From Increased Utilization (tons/yr)</b>
PM	0.439	-33.3	0.124	0.014	3.48	0.075	<b>-23.5</b>
PM-10	0.198	0.037	0.095	0.004	0.141	0.060	<b>6.09</b>
SO2	0.000	0.000	0.000	0.000	0.000	0.000	<b>0.000</b>
NOx	0.000	0.000	0.000	0.000	0.000	0.000	<b>0.000</b>
CO	0.000	0.000	0.000	0.000	0.000	0.000	<b>0.000</b>
VOC	0.095	0.000	0.000	0.000	0.000	0.000	<b>0.411</b>
Pb	0.000004	-0.0003	0.000001	0.0000001	0.000	0.00001	<b>-0.0003</b>
TF	0.000	0.000	0.000	0.000	0.000	0.00	<b>0.000</b>

**Methodology**

All increased utilization emissions are calculated for the anode baking ring furnace operating at 202,280 tons of green anodes per year.

Increased utilization from the fresh petroleum coke screening was based on 2000 emissions, a 0.4 lbs/ton PM and PM-10 emission factor and 0.6 ppm lead content

Increased utilization from the fresh petroleum coke hammermill was based on 2000 emissions, a 0.36 lbs/ton PM and PM-10 emission factor and 0.6 ppm lead content

Increased utilization from the fresh petroleum coke intermediate classifier was based on 2000 emission. a 0.71 lbs/ton PM and PM-10 emission factor and 0.6 ppm lead content

Increased utilization from the ball mill classifier was based on 2000 emissions, a 0.58 PM and PM-10 emission factor and 0.6 ppm lead content

Note: 46% is the maximum amount of green coke processed in the ball mill classifier

Increased utilization from coal tar pitch receiving was based on 2000 emissions and a VOC emission factor of 0.27 lbs/ton

Increased utilization from butts, pitch, and fresh coke mixing was based on 2000 emissions, a PM emission factor of 0.023 lbs per ton, a PM-10 emission factor of 0.004 and 9.55 ppm lead content

Increased utilization from green anode forming operations was based on 2000 emissions, emission factors: 0.006 lbs of PM/ton, 0.027 lbs of PM-10/ton and 0.013 lbs of VOC/ton and 9.5455 ppm lead content

Increased utilization from the anode butt blast machine was based on baghouse and shot blast machine replacement, emission factor: 0.01 lbs of PM-10/ton, 0.012 lbs of PM-10 per ton and 9.55 ppm lead content

Note: Netting is based on 1992 -1993 period when the anode butt blasting machine operated at maximum actual output

Increased utilization from the anode butts impactor was based on 2000 emissions and a 0.076 lbs/ton PM emission factor, a PM-10 emission factor of 0.1 lbs/ton and 9.55 ppm lead content

Increased utilization from the anode crushed butts storage was based on 2000 emissions and a 0.011 lbs/ton PM emission factor, a PM-10 emission factor of 0.011 and 9.55 ppm lead content

Increased utilization from the anode busbar cleaning is based upon busbars now being cleaned by brushing, rather than shot blasting, emission factors: 0.018 lbs of PM/bar and 8.68E-04 lbs of PM-10 per bar

Note: Netting is based on 1992 -1993 period when the anode busbar cleaning operated at maximum actual output

Increased utilization from the finished anode cast iron processing are based on 2000 emission, emission factors 0.41 lbs of PM /ton of iron melted, 0.33 lbs of PM-10 /ton of iron melted and 160 ppm lead content

## Appendix A: Emissions Calculations

**Company Name:** Alcoa, Inc. - Warrick Operations  
**Plant Location:** Jct. Ind. Hwys. 66 & 61, Newburgh, Indiana 47629-0010  
**Significant Source Modification:** 173-15661  
**Pit ID:** 173-00007  
**Permit Reviewer:** Michael S. Schaffer  
**Date:** March 5, 2002

## Dross Cooling Room Emissions

Pollutant	Emission Factor (lbs/ton)	Potential Emissions (lbs/yr)	Potential Emissions Before Controls (tons/yr)	Control Efficiency	Potential Emissions After Controls* (tons/yr)
PM-10	0.910	34520	17.3	50.00%	8.63

**Note:** Potential Emissions after controls and a throughput limit of 38,000 tons/yr per year is equivalent to an emission factor of 0.455 pounds per ton.

## Dross Cooling Room Net Emissions

Pollutant	2000 Emissions (tons/yr)	2001 Emissions (tons/yr)	Average 2000 and 2001 Actual Emissions (tons/yr)	Dross Cooling Room Net Emissions (tons/yr)
PM	0.0	0	0.0	0.00
PM-10	16.45	12.98	14.72	-6.09
SO <sub>2</sub>	0.0	0.0	0.0	0.00
NO <sub>x</sub>	0.0	0.0	0.0	0.00
CO	0.0	0.0	0.0	0.00
VOC	0.0	0.0	0.0	0.00
Pb	0.0	0.0	0.0	0.00
TF	0.0	0.0	0.0	0.00

## PSD Emission Netting

Pollutant	Rebuilt Furnace Net Emissions (tons/yr)	Increased Utilization Net Emissions (tons/yr)	Dross Cooling Room Net Emissions (tons/yr)	Total Source Net Emissions** (tons/yr)
PM	14.9	-23.5	0.00	-8.60
PM-10	14.9	6.09	-6.09	14.9
SO <sub>2</sub>	39.9	0.000	0.00	39.9
NO <sub>x</sub>	10.2	0.000	0.00	10.2
CO	99.9	0.000	0.00	99.9
VOC	9.71	0.411	0.00	10.1
Pb	0.064	-0.0003	0.00	0.064
TF	2.90	0.000	0.00	2.90

**\*\* Note:** Total Source Net Emissions = The Rebuilt Furnace Net Emissions + Increased Utilization Net Emissions + Net Emissions From Limited Dross Cooling Room

Alcoa has elected to limit the throughput to the dross cooling and install four new baghouses in order to limit the PM-10 emissions from this modification under the PSD significant levels.